

4.0 ENVIRONMENTAL CONSEQUENCES

4.0.1 Introduction

This chapter describes the environmental consequences, including the cumulative effects, for each of the alternatives evaluated in this Draft EIS, as described in Chapter 2.0. Each of the topical sections includes a description of the criteria and methods used to characterize the direct, indirect, and cumulative effects of the alternatives, an analysis of the alternatives and their potential effects and mitigation measures, and a comparison of the effects of the alternatives relative to potential effects.

As was indicated in Chapter 2.0 of this Draft EIS, the project description for the Maricopa Sun Solar Complex project was analyzed in the Environmental Impact Report (EIR) prepared for the County of Kern (Kern County, 2010). Subsequent to certification of the EIR, the project proponent for the Solar Complex has elected to reduce the acreage of the project for which the draft HCP has been prepared. The Permit Area described in the EIR totaled 6,046 acres, whereas the Permit Area in the draft HCP and this EIS total 5,784.3 acres. While it can be reasonably assumed that potential effects associated with implementation of the Proposed Action described in this EIS are less than those described in the EIR as a result of the reduced project size, a proportional reduction of the associated effects and resulting mitigation measures cannot be accurately calculated in every instance.

4.0.2 Methods of Assessing Direct and Indirect Effects

The National Environmental Policy Act (NEPA) requires federal agencies to consider the direct and indirect effects of their actions (40 Code of Federal Regulations [CFR] 1502.16). Direct effects are caused by the federal action and occur at the same time and place as the action (40 CFR 1508.8(a)). Indirect effects are those that are "caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR 1508.8(b)).

The description of the affected environment in Chapter 3.0, serves as the baseline against which direct and indirect effects are assessed in each environmental topic area for each alternative. The level of detail in an analysis of indirect effects is driven by the underlying action before the agency. The federal action analyzed in this EIS is the approval and implementation of the Habitat Conservation Plan (HCP) and the issuance of an ITP for the Covered Species, pursuant to Section 10(a)(1)(B) of the Federal ESA. As noted previously, an EIR for the proposed project was prepared under the requirements of the California Environmental Quality Act and certified by the County of Kern. Additional project-specific authorizations, including permits from other

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federal, State, regional, or local entities would also be required. Through these planning, review, and entitlement processes, mitigation measures for the direct and indirect effects described in this chapter would be implemented. With the exception of potential effects on Covered Species (which would be addressed by the Service as part of the ESA Section 10 process), the implementation of these mitigation measures would be the responsibility of agencies other than the Service. In other words, the Service would have responsibility for ensuring that mitigation measures pertaining to Covered Species are implemented and monitored. The County of Kern would have primary responsibility for ensuring that all other mitigation measures are implemented and monitored, since it will issue a conditional use permit for the Covered Action and has the authority to issue the grading and building permits that are required to construct the solar facilities.

Additionally, species-specific conservation measures would be implemented under each of the alternatives to varying degrees (depending on species covered under an alternative), with the exception of the No Action Alternative.

4.0.3 Methods for Assessing Cumulative Effects

NEPA requires agencies to consider the effects of both cumulative actions and cumulative Effects (40 CFR 1508.25, 1508.7). A cumulative impact is defined as “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 effects can result from individually minor but collectively significant actions taking place over a period of time” (40 CFR 1508.7). A cumulative action is one “which when viewed with other proposed actions have cumulatively considerable effects and should therefore be discussed in the same impact statement” (40 CFR 1508.25(a)(2)). Cumulative effects can be beneficial, detrimental, or both.

In a general sense, all effects on affected resources are cumulative; however, it is the goal of this EIS to provide analysis of the important resource issues and to discuss the effects that are of regional or local significance. In this case, cumulative effects are the incremental effects on the environment that would result from implementation of the HCP and the issuance of the ITP under one of the alternatives, when added to other past, present, and reasonably foreseeable future actions in the region, regardless of what agency or person undertakes such actions.

The discussion of cumulative effects includes analyses of both the direct effects attributable to the proposed action, as well as the indirect effects that are not directly attributable to the underlying action but that are facilitated by implementation of the HCP. The cumulative effects analysis attempts to delineate the cause–effect relationships between the underlying federal action and the subsequent decisions of other Federal, state, regional, and local entities that have direct jurisdiction over the specifics of the development. It is not practical or feasible to analyze

all indirect effects related to the possible construction and occupation of all future development. This cumulative analysis therefore considers a reasonable range of project-specific effects that would be subject to review by other agencies at a level of detail sufficient to meet the goals of determining the reasonably foreseeable environmental consequences of each of the alternatives.

The cumulative effects analysis also attempts to address the uncertainty surrounding actions that have not yet been fully developed. Regulations promulgated by the Council on Environmental Quality (CEQ) provide for the inclusion of uncertainties in the EIS analysis, and state that “[w]hen an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking” (40 CFR 1502.22). Consequently, the analysis contained in this EIS includes what could be reasonably anticipated to occur related to construction and long-term occupation of the Covered Lands, as described below.

4.0.4 Cumulative Effects Analysis Area

Cumulative effects occur at the landscape or regional level; therefore, for purposes of evaluating the cumulative effects of the alternatives, a regional-scale analysis is focused on growth in the southern San Joaquin Valley. The regional-scale analysis area is referred to as the cumulative effects analysis area in this chapter. For some resource areas, the cumulative effects analysis area described above has been expanded or modified to adequately address the combined effects of the alternatives and other reasonably foreseeable projects.

The cumulative setting encompasses the project area and its surroundings. This definition may extend to all of Kern County and its environs and beyond, depending on the resource area. For example, effects on cultural resources are generally static and unmoving. Whereas, effects related to air quality may have ramifications over a larger area – for example, as particulate matter disperses in the atmosphere; accordingly, the areal extent for assessing cumulative effects on air quality is much larger than that for assessing effects on cultural resources.

To understand how the Proposed Action fits into the larger development “picture” of Kern County, a list of proposed, pending, and recently approved projects within a radius of 6 miles from the Covered Lands was obtained from the Kern County Planning and Community Development Department. This distance from the Covered Lands is appropriate, given the generally site-specific, non-regional nature of the potential effects associated with the proposed photovoltaic solar facility. This listing is shown in Table 4.0-1. The projects in the table are colored-coded into five categories: solar, agricultural or livestock, zoning actions, cell towers, and miscellaneous. As can be seen from the project listing, the majority of the projects listed are either agricultural or solar.

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Table 4.0-1
Proposed, Pending, and Recently Approved Projects
Within a Radius of 6 Miles from the Covered Lands – Kern County, CA

Yellow	Solar Projects	695
Blue	Agricultural or livestock	5829.85
Red	Zoning	76.62
Green	Cell towers	48.05
Orange	Miscellaneous	610.5
other		3.65
	Total	7263.67

Name	Project Location	Request	Case Type	MAP	SECTION	APN	Acreage
ENXCO DEVELOPMENT CORPORATION	(ELK HILLS)	7 MW SOLAR PROJECT	CUP	139		298-170-27	, 47.30
RECURRENT ENERGY BY SETH ISRAEL	ACACIA AND CHERRY, TAFT	20 MW SOLAR PROJECT	CUP	139		298-190-15	,160.00
HARRINGTON, BILLY	28323 HWY. 119, DUSTIN AC RES	AG SUPPLY SERVICE	CUP	139	14	298-110-21	, 0.00
SELINGER, STEVE	SEC 13 - BUENA VISTA HILLS	SPECIFIC PLAN	GPA	139			
VAN PELT, DON	DUSTIN ACRES RD & VAN PELT RD.	TO E (1) RS MH (Mobilehome)	ZCC	139	22	298-120-49	, 7.50
TORRES SANDRA BY AARON BYRD	SW cor Isaac & Ferrel	ZC to A-1, limited agriculture (inconsistent with GP) or E (5) RS (estate residence)	ZCC	139	34	298-300-15	, 40.12
R.T. Martin	13453 Olen Ave	CUP for Equestrian Facility	CUP	140		184-012-18	, 0.00
RESPONSIBLE COMPOST MNG/COFFIN, JOHN	1 MI S/TAFT HWY, 1/2 MI W/I-5	COMPOSTING FACILITY	CUP	141		184-090-09	,200.00
CRUZ, GABRIEL/B ANDERSON	W/S S "H" ST, N/BEAR MTN BLVD	AG TRUCKING, PRODUCTS & SERVICES	CUP	142			
HUSEY, JOSHUA	8120 HOSEY AVE	2NDARD R.U. EXCEEDING SIZE	CUP	142		184-420-26	, 2.50
RECURRENT ENERGY BY SETH ISRAEL	SHAFTER RD AND ASHE RD METRO AREA	28 MW SOLAR PROJECT	CUP	142		184-490-04	,235.00

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Name	Project Location	Request	Case Type	MAP	SECTION	APN	Acreage
SINGH/SAN JOAQUIN ENGINEERING	11354 WIBLE RD.	AG TRUCKING FACILITY	CUP	142		184-230-01	, 2.30
ATHWAL, CRISTINA/BRET DAWSON	10402 COMPAGNONI ST	RETENTION OF AG TRUCKING FACILITY	CUP	142	1	184-470-12	, 2.84
OLDENKAMP TRUCKING	11314 WIBLE RD.	AG TRUCKING FACILITY	CUP	142		184-150-42	, 19.09
G I C Corp (Gabriel Cruz)	NWC of Bear Mtn and South H St	Ag Trucking	CUP	142		184-392-61	, 0.00
JON MOULE	NEC OF PROGRESS RD & SHAFTER RD.	GPA FROM R-IA TO RR (residential)	GPA	142	17	184-420-04	, 20.00
GILL, PUNIT K BY GW WILSON	NE CORNER GOSFORD & CHAIDEZ	CHANGE TO E (2 1/2) RS (estate residential)	ZCC	142	21	184-491-14	9.218
JUAREZ, ETHEL	10604 SO. "H"	ZC TO C-2 (general commercial)	ZCC	142		184-150-29	, 4.00
JON MOULE	NEC PROGRESS RD & SHAFTER RD	ZCC A TO E 2 1/2 (estate)	ZCC	142	17	184-420-04	, 20.00
HERNANDEZ, JOSE	GARDENER FIELD RD.	COMMUNITY CENTER	CUP	157		220-030-13	, 10.50
COSTAMAGNA, ERNIE/MACEDO ENG'G	S/S S LAKE RD, 2.5 MI E/GDNR FLD RD	DAIRY (GARDNER VIEW)	CUP	158	29	220-170-07	1,124.00
COSTAMAGNA, ERNIE/MACEDO ENG'G	N/S S LAKE ROAD, 2 MI W/SUNSET RR	DAIRY (SUNSET EXPRESS)	CUP	158			
R. WYATT SANDERS TRUST BY T-SQUARED	23102 SOUTH LAKE RD. TAFT, CA 93268	CUP & WILLIAMSON ACT LAND USE CANCELLATION TO ALLOW FOR THE DEVELOPMENT OF A 253 ACRE SOLAR FARM	CUP	158		220-120-09	,253.00
MARICOPA SUN LLC	LAKE ROAD AREA	700 MW SOLAR PROJECT	CUP	158	19	220-110-08	6,046.00
QUAN PHU BY ROGER FRYMIRE (VIKON)	SOUTH LAKE ROAD	Poultry PROCESSING PLANT	CUP	158		220-110-14	,120.00
MARICOPA SUN LLC	LAKE ROAD AREA	700 MW SOLAR PROJECT	GPA	158	19	220-110-08	6,046.00
BANDUCCI FARMING, LLC	DAIRY RD & ADOHR RD	DAIRIES (2)	CUP	159			
COSTAMAGNA, ERNIE/MACEDO ENG'G	S/S SO LAKE RD, 1/2 MI W/HILL RD	DAIRY (BUENA VIEW)	CUP	159	17	295-040-36	1,285.00
MARICOPA SUN LLC	COPUS RO AREA, W OF I-5	700 MW SOLAR PROJECT	CUP	159		295-030-17	6,046.00

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Name	Project Location	Request	Case Type	MAP	SECTION	APN	Acreage
MARICOPA SUN LLC	COPUS ROAD AREA W OF I-5	700 MW SOLAR PROJECT	GPA	159	23	295-030-17	6,046.00
RUDNICK FEEDLOT/PHILIP & DANIEL RUDNICK	OLD RIVER RD, 2 MI S/I - 5	FEEDLOT	CUP	160	19	295-110-31	,320.00
GRIMMWAY ENTERPRISES	COPUS RD. EAST OF I-5	ANIMAL WASTE COMPOSTING FACILITY	CUP	160		295-120-48	,160.00
GRIMMWAY ENTERPRISES BY MCINTOSH	N/S COPUS RD E/S I-5	COMPOSTING FACILITY	CUP	160	36	295-120-48	,160.00
GRIMMWAY ENTERPRISES BY MCINTOSH	N/S COPUS RD E/S I-5	3.7/3.7.1 COMPOSTING FACILITY - CUP TOO	GPA	160	36	295-120-48	,160.00
SILVER OAK/DAVID & DOUGLAS KAISER	NEC TEALE RD & ADOBE RD	DAIRY	CUP	161		445-041-01	,632.00
BLOOMFIELD/TILLEMA, RICH/JOHN SCHAAP	BEAR MTN RD & COTTONWOOD RD	DAIRY	CUP	161	28	185-340-12	1,274.00
ROSA DAIRY/AGRICULTURAL MAN SYSTEMS	S/HERRING, W/WHEELER RIDGE RD (S14)	DAIRY	CUP	161	14	445-041-19	,640.00
AT&T Mobility	9307 Copus Rd	150' Cell Tower	CUP	161		445-062-03	, 9.55
DE LA TORRE, CECELIA/J.R. DESIGN GROUP	1835 METTLER ROAD	COMMERCIAL COACH, PERMANENT INSTALLATION	CUP	203	1	238-281-08	, 1.15
GARONE, FRANK/RICKLES	VALPREDO RD FRONTAGE/HWY. 99	TO 7.1/2.5	GPA	203	1	238-205-29	, 33.00
GARONE, FRANK/RICKLES	VALPREDO FRONTAGE RD/HWY.99	ZC TO M-1 PD (light industrial)	ZCC	203	1	238-205-29	, 33.00
William Bonderov	Camelia & Wildflower St	R-1 to MP (mobile-home park)	ZCC	203	1	238-205-14	, 10.40
Fresno MSA Limited	West of Old River and SR-166	150 Cell Tower	CUP	204		239-350-09	, 38.50
CalMat Co	16101 HWY 166	SMARA for expansion of existing mine site. EIR will be required	CUP	205			, 0.00
CALIFORNIA VISION, INC	N&S GOLDEN CAT RD, 1 MIW/O MARICOPA	RECLAMATION PLAN ON BLM ADMINISTERED LAND	CUP	207		239-200-03	,600.00

Source: Kern County Planning and Community Development Department, 2013.

4.0.5 Determination of Scope of Cumulative Effects

In general, the determination of the cumulative effects of a proposed Federal action involves the following elements:

- analysis of the direct and indirect effects of the proposed action;
- determination of which resources, ecosystems, and human communities would be affected by the proposed action;
- consideration of the additive, synergistic and environmental consequences over time of other reasonably foreseeable actions; and

analysis of the magnitude of effects on these resources from a cumulative effects perspective. As noted above, direct effects identified in this EIS are those effects associated with implementation of the HCP and the issuance of the ITP. Indirect effects are those that would be caused by the action and would occur later in time. Where identified, the cumulative effects analysis considers the incremental effects of previous, ongoing and proposed activities within the Covered Lands, in combination with similar effects from other reasonably foreseeable projects.

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4.1 AESTHETICS / VISUAL RESOURCES

4.1.1 Overview

This section describes the potential effects of the alternatives on visual resources in the Project area compared to existing conditions as of the date when the Notice of Intent was issued. As described in Section 3.1, Aesthetics/Visual Resources, the proposed Project consists of approximately 5,784 acres of vacant agricultural land. The Project sites include a number of noncontiguous parcels in the Westside Subarea of the San Joaquin Valley within Kern County's Valley Region. Approximately 3,798 acres would be utilized for the solar arrays and supporting infrastructure, as well as movement corridors and required setbacks, with the remaining approximate 1,894 acres set aside as conservation areas.

Although the specific design and type of solar panels to be installed is not known, the Project will include either crystalline silicon or thin film photovoltaic (PV) technology on tilted or horizontal, single-axis trackers, or fixed tilt supports. If tilted trackers are used, drive motors will rotate the solar panels from east to west to follow the sun throughout the day. The highest point on the tilted tracker units (the uppermost solar panel) will be approximately 22 feet above the ground surface at a maximum, but could be as few as eight feet from the ground surface. A substation will be constructed along the western edge of the Project site, to measure approximately 150 feet by 150 feet, with a height of approximately 60 feet.

This portion of the valley, known as Maricopa Flat is surrounded by the San Emigdio Mountains to the south, the Temblor Range to the northwest, and the Tehachapi Mountain to the northeast. The Los Padres Valley is located to the southwest, with a long expanse of the southern San Joaquin Valley to the north.

4.1.2 Methodology

Extensive data and resources were consulted in preparation for the Maricopa Sun Solar Project EIR in 2010 (Kern County 2010, 4.1-1 to 4.1-42). Existing visual conditions data were collected by the County using an approach that incorporated a combination of information review, agency consultation, aerial photography and satellite imagery review (i.e., Google Earth Pro), map review, field reconnaissance, U.S. Geological Survey (USGS) digital elevation models, and onsite photography. Baseline visual information for projects within Kern County, used in (then) recently completed CEQA documents for the proposed action, were also referenced and used as appropriate. Sensitive receptors were identified on topographic maps, and GIS viewshed modeling techniques were used where appropriate.

The project proponent for the Solar Complex has elected to reduce the amount of land within the Covered Lands for which the Draft HCP has been prepared. The Permit Area described in the EIR totaled 6,046 acres, whereas the Permit Area in the Draft HCP and this EIS total 5,784.3

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acres. While it can be reasonably assumed that potential effects associated with implementation of the Proposed Action described in this EIS are less than those described in the EIR as a result of the reduced project size, a quantitative measurement of the reduced effects and resulting mitigation measures cannot be accurately described, especially for resources such as visual quality.

4.1.3 No Action Alternative

This section summarizes the potential visual effects associated with the No Action Alternative. As discussed in Section 2.3.2, the No Action Alternative assumes that the HCP would not be implemented, the proposed Incidental Take Permit (ITP) would not be issued, and the Covered Activities for the Maricopa Sun Solar complex would not occur. The 5,784.3 acres identified as the Permit Area would likely remain vacant, the 1,894.4 acres identified as Conservation Sites would not be permanently conserved, and the proposed Conservation Management Plan would not be implemented. Although the status of the land as farmland probably would not change, the land could be converted to another use, including commercial, industrial, mining, or energy production (solar or wind turbines) if another project were proposed. Roadways, access areas, solar panels, associated infrastructure and buildings would not be constructed for the proposed Project. If the proposed Project did not occur, no associated Movement Corridors would be installed to encourage wildlife and native vegetation. It is likely that no effects to visual resources would occur under this Alternative, except, and unless, another project were proposed for the Covered Lands.

Agricultural activities, including grazing or disking, would likely continue resulting in reduced habitat quality as a result of vegetation removal and soil compaction.

4.1.3.1 Solar Areas

Within the 3,798.3-acre Solar Area, no Project-related development would occur under the No Action Alternative. The landscape is dominated by vacant agricultural lands within the broad, flat valley, with distant views of mountains to the south, east and west. Views also include roadways, occasional agricultural buildings, and scattered residences, as well as occasional oil and natural gas extraction infrastructure. It is likely that the land would remain designated as agricultural, and there would be no use of irrigation to support active agriculture, such as orchards or row crops. Unless another project, such as oil or mineral extraction, or industrial or commercial use were proposed, requiring construction of facilities or structures, the viewshed would be unlikely to change. There would be no Project-related physical changes to the landforms, or direct or indirect effects to the aesthetics or visual landscape.

4.1.3.2 Conservation Areas

No ground disturbance or other Project-related activities would occur within the Conservation Areas under the No Action Alternative. As with the Solar Permit Area, there would be no physical changes to the landforms, or direct or indirect effects to the aesthetics or visual landscape unless irrigation agriculture, mining, or other projects were proposed in the Covered Lands.

4.1.3.3 Mitigation Measures

There are no mitigation measures imposed under the No Action Alternative.

4.1.3.4 Cumulative Effect

Visual effects of any project are not limited to the project site, but may be viewed from many miles away. Because the Covered Lands are within the San Joaquin Valley, the relatively uniform, flat landscape extends approximately 40 miles around the Covered Lands, and includes parts of SR 33, SR 166 and SR 119. Within the Solar Areas and Conservation Areas, the scenic character and visual quality of the project will not be altered by the Project. The agricultural production, mining, and other activities found throughout this portion of the valley are likely to continue. Cumulative effects from the No Action Alternative would likely be limited to the effects already occurring, including the visual effects of disking fields, planting crops and orchards, operations of drilling rigs and other localized activities.

All past projects in the vicinity of the Covered Lands were subject to review in separate environmental documents that would have required conformance to the Kern County General Plan, which required mitigation of visual effects. Thus, the cumulative effect from past, present, and reasonably foreseeable future projects under the No Action Alternative would be less than cumulatively considerable.

4.1.4 Proposed HCP Alternative

4.1.4.1 Solar Areas

The existing view of the Project area is primarily vacant, undeveloped agricultural land or row crops or orchards. The Project is located within a wide, open valley with views of mountains in the distance. The visual landscape, as viewed by one traveling along SR 166 are of open, agricultural land, occasionally broken by agricultural accessory buildings, oil and natural gas infrastructure, utility structures and overhead lines, and similar cultural modifications. Figures 4.1-1, 4.1-2, and 4.1-3 provide typical views of the Covered Lands, including undeveloped and fallow farmlands, existing transmission lines, and distant mountains. This landscape would be altered during both the construction and the operations phases of the Project.

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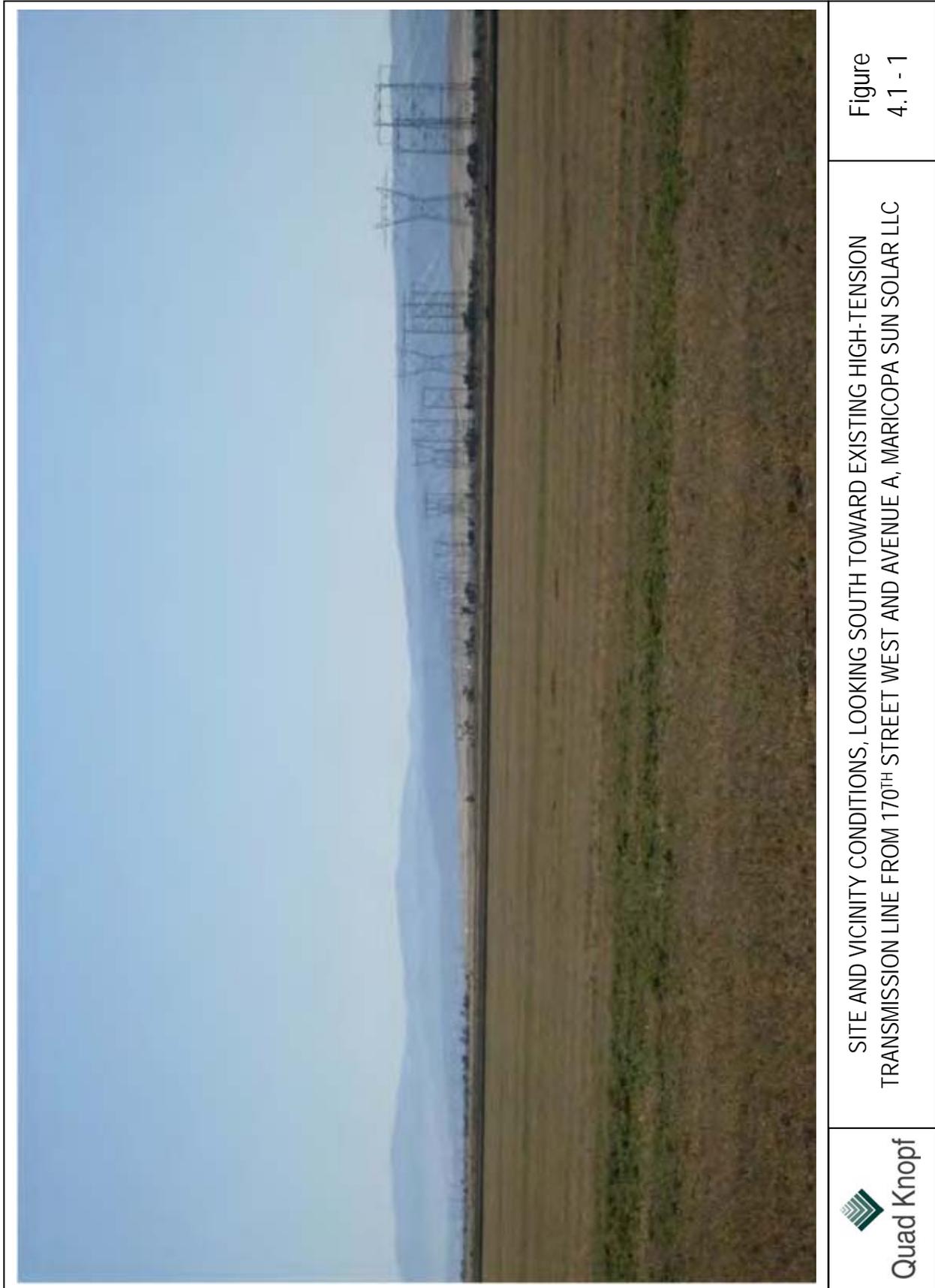


Figure
4.1 - 1

SITE AND VICINITY CONDITIONS, LOOKING SOUTH TOWARD EXISTING HIGH-TENSION TRANSMISSION LINE FROM 170TH STREET WEST AND AVENUE A, MARICOPA SUN SOLAR LLC



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	Figure 4.1 - 2
SITE AND VICINITY CONDITIONS WITH VIEWS OF ACTIVE FARMLAND AND MOUNTAIN BACKGROUND FROM HOLIDAY AVENUE AND 120 TH STREET WEST, MARICOPA SUN SOLAR LLC	 Quad Knopf

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 Quad Knopf	SITE AND VICINITY CONDITIONS, LOOKING EAST FROM 120 TH STREET WEST AT UNDEVELOPED LANDS, MARICOPA SUN SOLAR LLC
Figure 4.1 - 3	

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Construction Phase

During the construction phase, heavy equipment would be needed to install access roads, parking areas, staging and laydown areas, and to remove vegetation. Equipment may include excavators, graders, dump trucks, concrete trucks, trenchers, water trucks, forklifts and cranes. Once these tasks were completed, foundations for the solar array foundations and paved building sites would be constructed.

The removal of vegetation and creation of graded roads, staging areas, and solar array foundations will be visible as cleared areas from both nearby and from a distance. Water trucks will be on site to reduce airborne dust and its appearance, although some slow-moving dust clouds would be anticipated. Because the construction is scheduled to occur over the entire Project area over a period of eight to ten years, there may be temporary periods when dust causes temporary, reduced long-range visibility.

Construction Phase

Movement corridors will also be established to allow wildlife connectivity between the sites and nearby native habitats. These Movement Corridors will be established along the perimeters of four of the Solar Sites (Sites 2-S, 3-S, 4-S, and 7-S). Within the 50-foot wide Movement Corridors, artificial raised earthen berms will be created to provide refugia for small mammals during flooding events, and to provide burrowing, denning, and perching opportunities for a variety of species. All berms will be created using topsoil from the project site. A general access dirt road may be maintained alongside a drainage ditch created at the base of the berm. The berms will be linear to facilitate construction by mechanical means, but they will not necessarily be continuous; gaps will be provided at strategic locations to allow flood waters to pass without causing undue damage to the berms. The Movement Corridors comprise approximately 33 acres within the Solar Sites. Visual quality and scenic value may be temporarily decreased during the construction phase while berms are being installed; however, vegetation will not be disturbed during this process and air borne dust will be controlled by watering.

Implementation of Mitigation Measures MM4.1-1, MM4.1-2, and MM 4.1-3 will reduce the potential effects to the visual character of the Solar Panel Sites during construction and operations of the Project.

Under approved conditions, such as the use of hand-operated power tools, ancillary lighting will be used to adequately illuminate construction operations during periods of darkness. These light sources will be sited and designed so that light only illuminates intended equipment areas and will be shielded so that lighting does not spill over onto adjacent areas. Maximum lighting will consist of vehicle-mounted lights used during night construction operations, vehicle activated

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lights at each main gate, and lighting activated by motion detectors located at the operations and maintenance building and/or switchyard. It is anticipated that less lighting than this will be required, but this description establishes a maximum values for the purpose of establishing maximum project impacts. The illumination value of project lighting shall comply with “Dark Sky” lighting guidelines. All installed outdoor lighting shall meet safety and security standards. Routine maintenance of lighting may include replacement of bulbs, wiring, and fixtures.

Operations Phase

The solar arrays and associated infrastructure, such as maintenance and substation buildings, transformers, transmission lines, inverters, and circuit breakers would be constructed and remain during the operations phase. The Project could be viewed by motorists traveling on SR-166, SR-133, SR-119, and local roads including, Old River Road, Copus Road, S. Lake Road and Gardner Field Road, as well as by residents, employees, visitors, and other travelers.

From roadways, the solar arrays and other infrastructure could block fore- or middle-ground views of vegetation and landforms, replacing them with smooth-surfaced, geometric PV solar panels, transmission lines, transformers, and other human-made forms. The solar panels would be installed above the level of the surface, with the possible installation of a maximum of 22-foot high tilted tracker units or eight-foot high horizontal trackers.

Distant views of mountains and foothills would also be obscured from some locations. Although the Project would introduce new forms, textures, and colors into the viewshed, the scenic quality of the Covered Lands as a whole would not be significantly diminished, as the existing scenic quality is considered average. Conversely, because the Project would introduce new features that would appear as “large, geometric, industrial land uses on a landscape that currently feels open and rural,” (Kern County 2010), the Project’s effects to the existing visual character from some viewpoints would be considered substantial.

The Project would be visible from surrounding recreation areas. Because they are engaged in activities that are focused, at least to some degree, on their surroundings and the views, recreationalists are considered to be one of the most sensitive groups of visible receptors. Nearby recreation areas include the Wind Wolves Preserve, approximately five miles southwest of the nearest solar site. From the Crossing Picnic Area in the Wind Wolves Preserve, the Project would be visible in the middle ground as a broken pattern of solar arrays, interspersed with vacant land and the conservation areas, agriculturally productive land, roadways, and scattered structures across a 13-mile area from west to east (Figure 4.1-4). From this vista, the viewer would also see the San Emigdio Mountains and its foothills, Midway-Sunset, and Buena Vista Oil Fields in the distance, as well grasses and spring wildflowers in the foreground. When evaluated in 2010 (Kern County 2010) before implementation of the Project, this landscape was

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recognized as a relatively high level of scenic value because of the topographic relief, and the harmonious variety of vegetative textures and colors.

During the operations phase the solar arrays will have replaced much of the vacant agricultural land within the approximate 3,007-acre solar development area. The 2010 analysis conducted for the EIR of the original, larger project determined that, “the introduction of PV solar arrays and associated infrastructure [would] have a moderately high influence on the existing scenic quality...” at this site. This is especially true because the site would be viewed from a higher elevation, and the solar arrays’ appearance would be incongruent with the existing features. Although the visual effects of the Project would be limited to a smaller project area within the viewshed than under the 2010 analysis, the effects to scenic quality would still be considered “moderately high” in this smaller construction area, as demonstrated in the computer generated photograph included here as Figure 4.1-5.

Additionally, within the Movement Corridors, vegetation height would be controlled during the operations phase primarily through the use of sheep for grazing. The berms would be expected to level off somewhat, to a height of three to four feet. Once the Movement Corridors have been improved, encroachment of construction activities and vegetation removal will be restricted by erecting security fencing along the boundaries of the Movement Corridors that adjoin Solar Development Footprints. The Movement Corridors would provide a transition zone of sorts, between the highly altered solar areas and other uses, adjacent vacant lands, or conservation areas, giving the viewer an impression of the original, more rural landscape.

The Project would include a new source of light for security during the Operations Phase. Lighting during the operations and maintenance phase will consist of shielded, motion-detector lights on the operations and maintenance buildings. To minimize the effects of lighting on Covered Species, all outdoor lighting shall emit light toward the blue spectrum. “White” light sources, such as metal halide lamps and white light-emitting diodes, shall not be used. Acceptable light sources include high- and low-pressure sodium lamps, incandescent bulbs, and “yellow” light-emitting diodes. The addition of minimal security lighting is not anticipated to result in light trespass and sky glow that would create a substantial change in the existing night sky view for the few nearby residents. Lighting would be in compliance with all development standards, the Kern County Zoning Ordinance, and the goals, policies, and implementation measures in the Kern County General Plan. Implementation of Mitigation Measures MM 4.1-5, MM 4.1-6 and MM 4.1-7 would reduce the potential for spillover lighting to affect residents, motorists, recreationists, and workers to a minimal level.

The Project would include a new source of light for security during the Operations Phase. Lighting would most likely be installed near the maintenance building, and near the onsite substation and perhaps at gates on the perimeter. The addition of minimal security lighting is not anticipated to result in light trespass and sky glow that would create a substantial change in the

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existing night sky view for the few nearby residents. Lighting would be in compliance with all development standards, the Kern County Zoning Ordinance, and the goals, policies, and implementation measures in the Kern County Plan. Implementation of Mitigation Measures MM 4.1-5, MM 4.1-6 and MM 4.1-7 would reduce the potential for spillover lighting to affect residents, motorists, recreationists, and workers to a minimal level.

Potential glare from the solar panels would not be substantial, as the panels would be expected to incorporate anti-reflective design measures that would reduce excessive glare. However, if the panels were installed on trackers that elevated them to their most vertical position, glare could affect motorists passing at certain times of the day, so that glare could be considerable to these viewers. Glare could also occur at further distances at the times of day (early morning and evening) and times of year when the sun is lowest in the sky. Typically, glare effects could be expected to last from approximately 30 to 60 or 70 minutes. Mitigation Measures MM 4.1-8 and MM 4.1-9 will minimize glare and its effects to motorists and others to minimal levels.



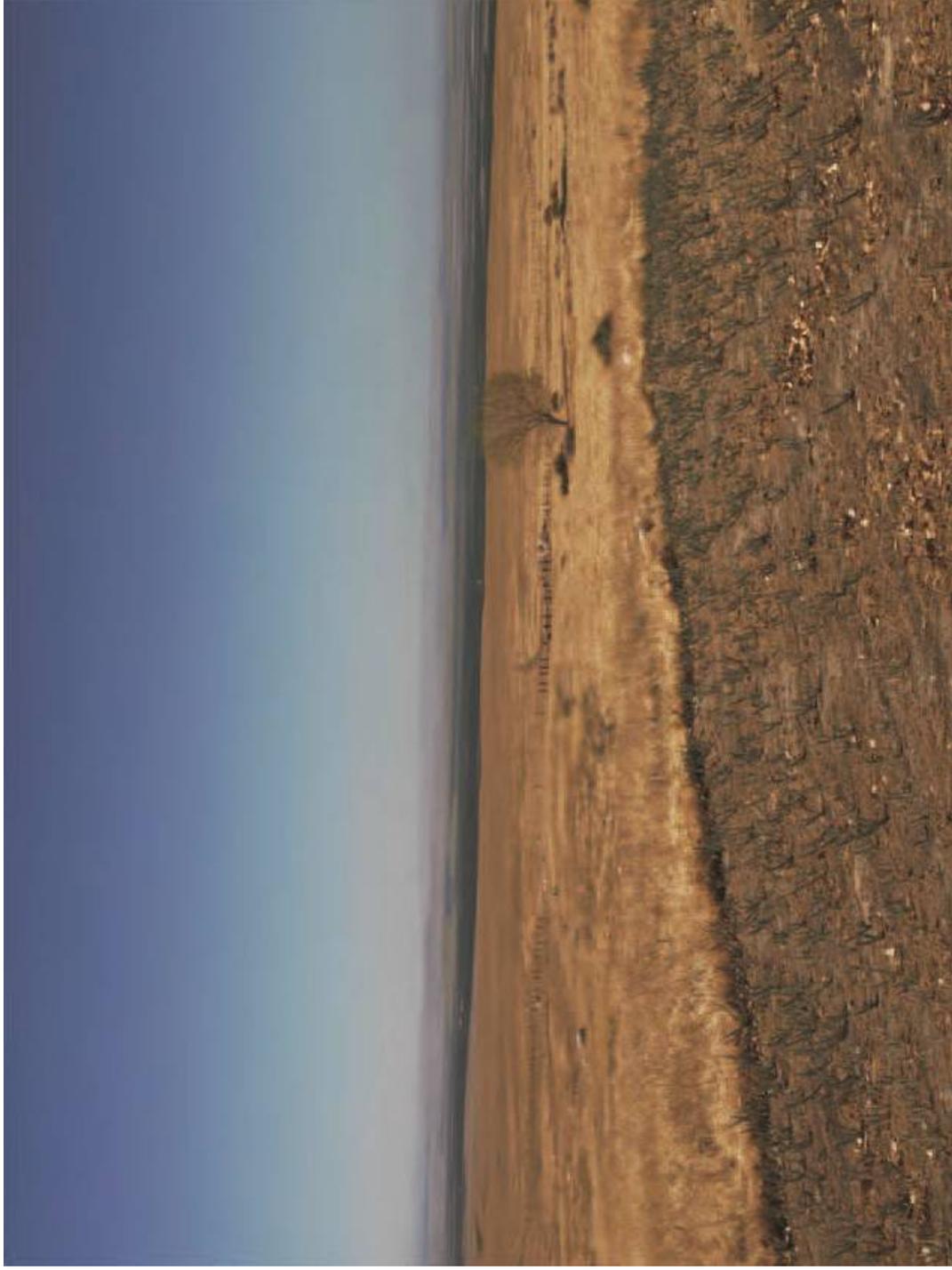
Figure
4.1 - 4

VIEW OF THE COVERED LANDS FROM THE WIND WOLVES PRESERVE CROSSING
PICNIC AREA, MARICOPA SUN SOLAR LLC



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	<p>VIEW OF THE COVERED LANDS WITH COMPUTER GENERATED SOLAR PANEL FACILITY FROM THE WIND WOLVES PRESERVE CROSSING PICNIC AREA, MARICOPA SUN SOLAR LLC</p>	<p>Figure 4.1 - 5</p>
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4.1.4.2 Conservation Areas

Construction Phase

The visual quality and character of the approximate 1,895 acres to be set aside as Conservation Areas will not be negatively affected by the Project during the construction phase of the Project. The intent of the Conservation Areas is to encourage the return of native vegetation and wildlife, which will maintain the scenic value and character of the sites. This will be accomplished by re-establishing the habitat, which will include the cessation of disking in areas where it occurred in the past. Some sites will require no action, as they have not been actively farmed or tilled. Natural vegetation will be encouraged within all sites in the Conservation Areas, and seeding will occur where needed to re-establish a semblance of native habitat. Within two to three years of cessation of disking, re-vegetation will occur, so that vegetation will be well-established by the completion of the eight-to-ten year construction phase. Approximately 720 acres of the Conservation Areas are considered off site conservation land, including a 640-acre parcel south of SR 166. In this area, and in other areas where the land has been impacted in the past by disking, repeated plantings of row crops, mining, or other activities, the quality of the habitat and the resulting scenic quality of the viewsheds within the Conservation Areas would be beneficially affected under the Proposed HCP Alternative.

Operations Phase

Once disking of the conservation areas has ceased, the re-establishment of native vegetation will replace vacant, disked agricultural fields in the Conservation Areas. Long-term management of these areas through managed grazing and restoration, where needed, will also be implemented. Other activities intended to improve the habitat within the Conservation Areas will continue during the Operations Phase. Again, the Conservation Areas will not be negatively affected by the Project, and the visual quality and scenic value will be beneficially affected in these areas.

4.1.4.3 Proposed Mitigation Measures

MM 4.1-1: Drought tolerant native plants, in minimum of 15-gallon size containers, approved by the Kern County Planning and Community Development Department, shall be planted along the fence line at 500-foot intervals where the adjoining property is zoned for residential use (E [Estate Residential], R-2 [Medium Density Residential], or R-3 [High-Density Residential]). This vegetative treatment should also be implemented along local rural routes.

MM 4.1-2: Prior to the final site plan approval and the issuance of grading or building permits, the project boundary setbacks shall be increased by an additional 50 feet near heavily used travel ways (e.g., SR-166, South Lake Road, and Old River Road), and residences. This technique would create separation by reducing the immediate adjacency of the proposed project, effectively

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reducing the project's proximity to visual receptors. This would also help create a sense of space where project parcels are on both sides of the travel way.

MM 4.1-3: The Project Operator, to the extent feasible, shall install underground, onsite electrical collection systems to reduce the random tall vertical lines created by the electrical poles. Undergrounding would also remove the dark horizontal lines of the conductors. This would create a project footprint that has a considerably smaller vertical presence, resulting in a less cluttered skyline and a more benign industrial nature.

MM 4.1-4: The Project Operator shall clear debris from the project area at least twice per year; this can be in conjunction with regular panel washing and site maintenance activities. The applicant shall erect signs with contact information for the facility operator's maintenance staff at regular intervals along the site boundary, as required by Kern County Planning and Community Development Department. Maintenance staff shall respond within two weeks to resident requests for additional cleanup.

MM 4.1-5: All outdoor lighting shall be the minimum required to meet safety and security standards. The color of all light fixtures shall emit a minimum of blue in their spectrum. "White" light sources, such as metal halide lamps and white light-emitting diodes, shall not be used. Acceptable light sources include high- and low-pressure sodium lamps, incandescent bulbs, and "yellow" light-emitting diodes. Project facility lighting shall be designed to provide the minimum illumination needed to achieve safety and security objectives.

MM 4.1-6: All light fixtures shall have a flat lens recessed within a shield or hood to direct light to the intended illumination area. This will reduce the potential for glare effects that otherwise may create light trespass to residents or motorists and will minimize the amount of light spilling upward into the sky, which would potentially affect local dark-sky conditions. Appropriate lighting at that time will be used and this will be in compliance with all development standards, the Kern County Zoning Ordinance Chapter 19.81, and the goals, policies and implementation plans of the Kern County General Plan Land Use, Open Space and Conservation Element.

MM 4.1-7: Security lighting shall utilize advanced security technologies, such as motion detectors or remote security surveillance that would activate the security lighting only when the sensors identify a perimeter breach or other security threat. Additionally, lights shall use timers limiting their activation time. Dusk till dawn security lighting is prohibited. Operation and maintenance activities shall be conducted during daylight hours.

MM 4.1-8: Solar panels and hardware shall be designed to minimize glare and spectral highlighting. To the extent possible, emerging technologies shall be utilized that introduce diffusion coatings and nanotechnological innovations that will effectively reduce the refractive

index of the solar cells and protective glass. These technological advancements are intended to make the solar panels more efficient at converting incident sunlight into electrical power, but have the tertiary effect of reducing the amount of light that escapes into the atmosphere in the form of reflected light, which would be the potential source of glare and spectral highlighting.

MM 4.1-9: As needed along the boundaries of the facility, appropriately colored privacy slats shall be woven into the perimeter fencing to reduce the potential for glare and spectral highlighting of the solar panels, which may be a source of distraction or discomfort to motorists along I-5, SR 166, South Lake Road, Copus Road, and Old River Road, and to scattered rural residents, especially along Copus Road.

4.1.4.4 Cumulative Effect

Visual effects of any project are not limited to the project site, but may be viewed from many miles away. Because the Covered Lands are within the San Joaquin Valley, the relatively uniform, flat landscape extends approximately 40 miles around the Covered Lands, and includes parts of SR 33, SR 166 and SR 119. The Project would result in substantial scenic quality effects by introducing new colors, textures, and forms into the view in the Solar Panels Areas that would be incongruent with the existing visual environment. However, because of the existing scenic quality from nearby and short-range viewpoints, considered “average” in the EIR analysis (Kern County 2010), implementation would not substantially degrade the existing scenic quality for these viewers. The existing scenic quality of the Covered Lands and its surrounding area is high from topographically superior viewpoints within 10 miles of the sites, and therefore the Project would result in a substantial effect on the visual quality for viewers at a distance. Also the Project would result in a considerable effect on the existing visual character of the Covered Lands because it would introduce an industrial element into a predominantly open, agricultural landscape. Views within the Conservation Areas would be altered as well, although the resulting improvements in the vegetation and overall habitat conditions would generally be perceived as a beneficial effect of the Project.

Overall, the proposed Project would result in a substantial effect on the existing visual character of the Covered Lands as viewed from distant viewpoints. Additionally, the proposed Project would increase the utilitarian character of the viewshed by introducing additional utility-grade infrastructure for the life of the Project. As such the program would contribute to the cumulative, considerable alteration of the existing visual character and scenic quality of the Covered Lands and its surroundings. Although some potential effects can be reduced or avoided with the implementation of mitigation measures, effects of the proposed Project would have the potential, when considered with effects for past, present, and reasonably foreseeable projects in the Kern County viewshed to result in a cumulative effect on daytime views. With the implementation of the mitigation measures, nighttime views would be minimally affected.

4.1.5 Reduced Permit Area Alternative

Under the Reduced Permit Area Alternative, the Permit Area would be reduced from 5,784.3 acres to 3,682 acres by removing from the Project: Sites 4-S/4-M (652.5 acres), 6-S (320.9 acres), 7-S/7-M (481.2 acres) and 17-C (647.7 acres). The lands excluded from the Permit Area would likely remain vacant and would continue to be disked on a regular basis for weed control. If water became available, these lands would likely be converted to active agricultural production.

4.1.5.1 Solar Areas

Construction Phase

As discussed in the Methodology section, with the reduction in acres in the Permit Area one could assume that effects to resources would be proportionally reduced; however this is not necessarily the case with Visual Resources. Of the 2,102.3 acres to be removed from consideration under this Alternative, 1,454.6 acres were in the Solar Areas, and the remaining 647.7 acres were in the Conservation Areas. The Reduced Permit Area Alternative includes a 48 percent reduction in acreage for solar panels, associated infrastructure and Movement Corridors.

During the construction phase, heavy equipment would be needed to install access roads, parking areas, staging and laydown areas, and to remove vegetation. Equipment may include excavators, graders, dump trucks, concrete trucks, trenchers, water trucks, forklifts and cranes. Once these tasks were completed, foundations for the solar array foundations and paved building sites would be constructed.

The removal of vegetation and creation of graded roads, staging areas, and solar array foundations would be visible as cleared areas from both nearby and from a distance. Water trucks will be on site to reduce airborne dust and its appearance, although some slow-moving dust clouds are anticipated. Because the construction is scheduled to occur over the entire Project area over a period of eight to ten years, there may be temporary periods when dust causes temporary, reduced long-range visibility.

Movement corridors will also be established to allow wildlife connectivity between the sites and nearby native habitats. These Movement Corridors will be established along the perimeters of four of the Solar Sites (Sites 2-S, 3-S, 4-S, and 7-S). Within the 50-foot wide Movement Corridors, artificial raised earthen berms will be created to provide refugia for small mammals during flooding events, and to provide burrowing, denning, and perching opportunities for a variety of species. All berms will be created using topsoil from the project site. A general access dirt road may be maintained alongside a drainage ditch created at the base of the berm. The berms will be linear to facilitate construction by mechanical means, but they will not necessarily be continuous; gaps will be provided at strategic locations to allow flood waters to

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pass without causing undue damage to the berms. Visual quality and scenic value may be temporarily decreased during the construction phase while berms are being installed; however, vegetation will not be disturbed during this process and air borne dust will be controlled by watering.

During the construction phase, potential effects from heavy equipment and airborne dust may be reduced proportionally to the reduction in acreage; however the effects to visual quality and scenic value are not as simple to quantify. Sites 4-S/4-M, 6-S, and 7-S/7-M are the easternmost sites. Although potential effects that are apparent from the eastern side of the Project Area may be reduced or eliminated, the near and middle-distance views of the Solar Areas, and the distant views from the north, west, and southwest will be substantially altered. However, the existing fore- and middle-distance views have no outstanding characteristics, so that implementation of the Project would not substantially degrade the existing scenic quality or visual character for these viewers.

Operations Phase

The solar arrays and associated infrastructure, such as maintenance and substation buildings, transformers, transmission lines, inverters, and circuit breakers would be constructed and remain during the operations phase, although the PV solar panels would be reduced from 5,784.3 acres of the Proposed HCP Alternative to 3,682 acres under the Reduced Permit Area Alternative. The Project could be viewed by motorists traveling on SR-166, SR-133, SR-119, and local roads including, Old River Road, Copus Road, S. Lake Road and Gardner Field Road, as well as by residents, employees, visitors, and other travelers.

From roadways, the solar arrays and other infrastructure could block fore- or middle-ground views of vegetation and landforms, replacing them with smooth-surfaced, geometric PV solar panels, transmission lines, transformers, and other human-made forms. The parcels to be eliminated from this Alternative are in the eastern portion of the Covered Lands, and therefore views from S. Lake Road would be of more distant solar panels, not PV solar panels directly along the roadway.

Although distant views of mountains and foothills would be obscured from some locations, these views would be visible from Sites 4-S/4-M, 6-S, and 7-S/7-M. The Project would introduce new forms, textures, and colors into the viewshed. However, the scenic quality of the Covered Lands as a whole would not be substantially diminished, as the existing scenic quality is considered average. Conversely, because the Project would introduce new geometric, industrial features on the open, rural landscape, the Project's effects to the existing visual character from some viewpoints would be considered considerable.

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The Project would also be visible from more distant views, including surrounding recreation areas. From the Crossing Picnic Area in the Wind Wolves Preserve, approximately five miles southwest of the nearest solar permitted parcel, the Project would be visible in the middle ground as a broken pattern of solar arrays, interspersed with vacant land and the conservation areas, agriculturally productive land, roadways, and scattered structures. This pattern would be visible across a five-mile area from west to east with two other parcels visible approximately two and one half and five miles further east. From this vista, the viewer would also see the San Emigdio Mountains and its foothills, Midway-Sunset and Buena Vista Oil Fields in the distance, as well grasses and spring wildflowers in the foreground. When evaluated in 2010 before implementation of the Project, this landscape was recognized as a relatively high level of scenic value because of the topographic relief, and the harmonious variety of vegetative textures and colors. Although the visual effects of the Project would be limited to a smaller project area within the viewshed than under the 2010 analysis, the effects to scenic quality would still be considered “moderately high” in this smaller construction area.

During the operations phase the solar arrays will have replaced vacant agricultural land within the approximate 2,343.7-acre solar development area under the Reduced Permit Area Alternative. The Solar Areas will be visible from distant views, and will appear, especially from higher elevations, as incongruent with the existing features.

Movement Corridors will be included in the Reduced Permit Area Alternative on the north side of Parcels 2, and the east and south sides of Parcel 16. Vegetation height would be controlled during the operations phase primarily through the use of sheep for grazing. The berms would be expected to level off somewhat, to a height of three to four feet. Once the Movement Corridors have been improved, encroachment of construction activities and vegetation removal will be restricted by erecting security fencing along the boundaries of the Movement Corridors that adjoin Solar Development Footprints. The Movement Corridors would provide a transition zone of sorts, between the highly altered solar areas and other uses, adjacent vacant lands, or conservation areas, giving the viewer an impression of the original, more rural landscape. However, under this Alternative, the Movement Corridors would be located in areas not viewed by many along roadways, and would not be apparent to most viewers from a distance.

The Project would include a new source of light for security during the Operations Phase. Lighting during the operations and maintenance phase will consist of shielded, motion-detector lights on the operations and maintenance buildings, and perhaps at gates on the perimeter. The addition of minimal security lighting is not anticipated to result in light trespass and sky glow that would create a substantial change in the existing night sky view for the few nearby residents. Lighting would be in compliance with all development standards, the Kern County Zoning Ordinance, and the goals, policies, and implementation measures in the Kern County General Plan. Implementation of Mitigation Measures MM 4.1-5, MM 4.1-6 and MM 4.1-7, as described

in Section 4.1.4.3 for the Proposed HCP Alternative would reduce the potential for spillover lighting to affect residents, motorists, recreationists, and workers to a minimal level.

Glare is not evaluated under the criteria used to determine scenic quality and visual character, but is evaluated instead on the potential to cause visual discomfort or impairment of vision (dazzling). Potential glare from the solar panels would not be substantial, as the panels would be expected to incorporate anti-reflective design measures that would reduce excessive glare. However, if the panels were installed on trackers that elevated them to their most vertical position, glare could affect motorists passing at certain times of the day, so that glare could be substantial to these viewers. Mitigation Measures MM 4.1-8 and MM 4.1-9 as described in 4.1.4.3 will minimize glare and its effects to motorists and others to minimal levels.

4.1.5.2 Conservation Areas

Construction Phase

The visual quality and character of the approximate 647 acres to be set aside as Conservation Areas under the Reduced Permit Area Alternative will not be negatively affected by the Project during the construction phase of the Project. The intent of the Conservation Areas is to encourage the return of native vegetation and wildlife, which will maintain the scenic value and character of the sites. This will be accomplished by re-establishing the habitat, which will include the cessation of disking in areas where it occurred in the past. Some sites will require no action, as they have not been actively farmed or tilled. Natural vegetation will be encouraged within all sites in the Conservation Areas, and seeding will occur where needed to re-establish a semblance of native habitat. Within two to three years of cessation of disking, re-vegetation will occur, so that vegetation will be well-established by the completion of the eight-to-ten year construction phase. In areas where the land has been impacted in the past by disking, repeated plantings of row crops, mining, or other activities, the quality of the habitat and the resulting scenic quality of the viewsheds within the Conservation Areas would be beneficially affected under the Proposed HCP Alternative.

Operations Phase

Once disking of the conservation areas has ceased, the re-establishment of native vegetation will replace vacant, disked agricultural fields in the Conservation Areas. Long-term management of these areas through managed grazing and restoration, where needed, will also be implemented. Other activities intended to improve the habitat within the Conservation Areas will continue during the Operations Phase. Again, the Conservation Areas will not be negatively affected by the Project, and the visual quality and scenic value will be beneficially affected in these areas.

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4.1.5.3 Proposed Mitigation Measures

The same mitigation measures as proposed under Section 4.1.3.3, the Proposed HCP Alternative, would be implemented under the Reduced Permit Area Alternative.

4.1.5.4 Cumulative Effect

Visual effects of any project are not limited to the project site, but may be viewed from many miles away. Because the Covered Lands are within the San Joaquin Valley, the relatively uniform, flat landscape extends approximately 40 miles around the Covered Lands, and includes parts of SR 33, SR 166 and SR 119. The Project would result in substantial scenic quality effects by introducing new colors, textures, and forms into the view in the Solar Panels Areas that would be incongruent with the existing visual environment. However, because of the existing scenic quality from nearby and short-range viewpoints, considered “average” in the EIR analysis (Kern County 2010), implementation would not substantially degrade the existing scenic quality or visual character for these viewers. The existing scenic quality of the Covered Lands and its surrounding area is high from topographically superior viewpoints within 10 miles of the sites, and therefore the Project would result in a substantial effect on the visual quality for viewers at a distance. Also the Project would result in a substantial and unavoidable effect on the existing visual character of the Covered Lands because it would introduce an industrial element into a predominantly open, agricultural landscape. Views within the Conservation Areas would be altered as well, although the resulting improvements in the vegetation and overall habitat conditions would generally be perceived as a beneficial effect of the Project.

Overall, the proposed Project would result in a substantial effect on the existing visual character of the Covered Lands as viewed from distant viewpoints. Additionally, the proposed Project would increase the utilitarian character of the viewshed by introducing additional utility-grade infrastructure for the life of the Project. As such the program would contribute to the cumulative alteration of the existing visual character and scenic quality of the Covered Lands and its surroundings. Although some potential effects can be reduced or avoided with the implementation of mitigation measures, effects of the proposed Project would have the potential, when considered with effects for past, present, and reasonably foreseeable projects in the Kern County viewshed to result in a cumulative effect on daytime views.

4.1.6 Comparison of Alternatives

A summary of results comparing the No Action Alternative to the Proposed HCP Alternative and Reduced Permit Area Alternative is shown in Table 4.1-1. Each of the potential effect areas, which includes effects to visual quality and visual character from the construction and operations phases of the proposed Project, is measured with a less, more, or similar, effect ranking as compared to the No Action Alternative.

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Table 4.1-1
Comparison of Alternatives to the No Action Alternative

Potential Effect	No Action	Proposed HCP	Reduced Permit Area
AESTHETICS			
Solar Panel Areas	-		
Construction Phase	-	More	More
Operations Phase	-	More	More
Conservation Areas			
Construction Phase	-	Less	Less
Operations Phase	-	Less	Less
LIGHT/GLARE			
Solar Panel Areas	-		
Construction Phase	-	Similar	Similar
Operations Phase	-	More	More
Conservation Areas			
Construction Phase	-	Similar	Similar
Operations Phase	-	Similar	Similar
Cumulative Effect	-	More	More

Source: Kern County, 2010.

There would be no changes in the existing visual character or scenic value under the No Action Alternative, unless other projects were proposed. If this were the case, any proposed project would be required to complete an environmental evaluation to determine effects to visual quality.

The Proposed HCP Alternative would, in general, have a greater effect on the near view, the mid-view, and the distant view than the Reduced Permit Area Alternative. Because the Reduced Permit Area Alternative contains fewer acres than the Proposed HCP Alternative, the effects to the overall viewshed would be less under the former than the later Alternative, although effects from either of these Alternatives would be greater than under the No Action Alternative.

Four aspects must be considered when determining potential effects to the Covered Lands, including scenic quality, visual character, light and glare. Within the Covered Lands effects to the Solar Sites will vary significantly from effects to the Conservation Areas. The Conservation Areas will be left in their current state, or modifications will be implemented to improve habitat for native species, resulting in views of natural habitat rather than lands disturbed from agricultural activities. Therefore, the dramatic changes from rural to more industrial views that occur on the Solar Sites will be most noticeable to viewers from near, middle, and far view sights.

The Covered Lands will be visible from a distance, and the 3,798.3-acre Covered Lands considered under the Proposed HCP Alternative will be more prominent than would the 2,343.7-acre solar development area under the Reduced Permit Area. The distant mountains and foothills would not be visible when viewed from the Proposed HCP Alternative or the Reduced Permit Area Alternative; however, the Reduced Permit Area Alternative would block fewer distant

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views. Changes from an agricultural landscape to one broken by large, geometric industrial features would be more apparent in the larger Covered Lands of the Proposed HCP Alternative than in the smaller footprint of the Reduced Permit Area Alternative. Therefore, the Proposed HCP Alternative would have a greater effect on the visual character of the area than the Reduced Permit Area Alternative. Either Action Alternative would, however, change the visual character from one of rural agriculture to one interspersed with industrial features, whereas the visual character would not change under the No Action Alternative.

The scenic quality of the Covered Lands would not be degraded substantially, under any of the Alternatives. The view of the vacant agricultural lands, interspersed with productive fields and orchards, and other uses was determined to be of average scenic quality. The change from this unremarkable landscape to one with parcels of organized rows of solar panels, interspersed with natural habitat, vacant agricultural land, and scattered residences and oil wells was determined to be minimal.

Similarly, because the Reduced Permit Area Alternative has a smaller footprint for the Solar Panel Areas, the potential for effects from lighting and glare would be less than these potential effects under the Proposed HCP Alternatives. However, lighting is not anticipated for the construction phase under either Action Alternative, and will not be used in the Conservation Areas under either Action Alternative. Lighting is proposed in limited areas only during the operations phase on the Solar Sites to include only lighting on gates and perhaps at gates. Glare would be a factor only on the Solar Sites as well. With the implementation of mitigation measures MM 4.1-5 through MM 4.1-9 would reduce potential effects of lighting and glare to minimal levels in both of the Action Alternatives. Lighting and glare would not affect the Covered Lands under the No Action Alternative. Although lighting and glare would occur to a lesser extent under the Reduced Permit Area Alternative, both Action Alternatives would result in greater affects to the Covered Lands than the No Action Alternative.

4.2 AGRICULTURE

4.2.1 Overview

This section describes the potential effects of the alternatives on agricultural resources in the Covered Lands compared to existing conditions when the Notice of Intent was issued. As described in Section 3.2, Agriculture, the Covered Lands consist of approximately 5,784 acres of primarily, vacant agricultural land. The Project sites include a number of noncontiguous parcels in the Westside Subarea of the San Joaquin Valley within Kern County's Valley Region. Approximately 3,798 acres would be utilized for the solar arrays and supporting infrastructure, as well as movement corridors and required setbacks, with the remaining approximate 1,894 acres set aside as Conservation Areas.

4.2.2 No Action Alternative

This section summarizes the potential effects to agriculture associated with the No Action Alternative. As discussed in Section 2.3.2, the No Action Alternative assumes that the Draft HCP would not be implemented, the proposed Incidental Take Permit (ITP) would not be issued, and the Covered Activities for the Maricopa Sun Solar complex would not occur. The 5,784.3 acres identified as the Permit Area would likely remain vacant, the 1,894.4 acres identified as Conservation Sites would not be permanently conserved, and the proposed Conservation Management Plan would not be implemented.

The Covered Lands include approximately 5,784 acres of nearly flat land, some of which was previously cultivated for agricultural production. The land in the immediate vicinity of the Covered Lands is cultivated and uncultivated farmland, industrial, residential, and a vacant mineral resource area. The Covered Lands have the following land use designations in the Kern County General Plan: 8.1 (Intensive Agriculture); 8.1/2.5 (Intensive Agriculture/Flood Hazard); 8.3/2.5 (Extensive Agriculture/Flood Hazard); 8.5/2.5 (Resource Management/Flood Hazard); and 8.1/2.3 (Intensive Agriculture/Shallow Groundwater). The Covered Lands are zoned A (Exclusive Agriculture) or A-1 (Limited Agriculture) by the Kern County Zoning Ordinance.

The Covered Lands are designated under the Farmland Protection Policy Act (FMMP) as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Grazing Land, and a small amount of Vacant or Disturbed Land and Nonagricultural and Natural Vegetation. The Covered Lands have not been farmed for at least 12 years and would not be farmed in the foreseeable future because they lack a developed, dependable irrigation water supply. Lands in this vicinity receive irrigation water from the Wheeler Ridge Maricopa Water Storage District. Surface water received under contract appurtenant to this land is aggregated to all local ranches together as one allocation, and the landowners have disbursed this allocation for use on planted acreage. The allocation of water is not expected to increase to allow usage on addition farmland. A change in

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the disbursement of water among the local ranches/farms is unlikely in the foreseeable future, as much of the productive land is planted in established orchards that depend on irrigation water, and not annual crops (i.e., tomatoes or melons) that would allow land to remain fallow if water were not available. Consequently, the lack of water for crop irrigation limits the potential agricultural productivity of the land, and the cultivation of crops is infeasible. Therefore, according to the California Department of Conservation criteria, parcels within the Covered Lands do not qualify as Prime Farmlands. In this arid region, the land would qualify only as Grazing land, although a source of water would be needed for livestock, and it is unlikely that the fallow farmlands would provide vegetation suitable for grazing.

The Covered Lands are within the boundaries of Agricultural Preserve No. 12. The Covered Lands were granted a certificate of cancellation of the Williamson Act land use contracts (Resolution No. 2011-078) by the Kern County Board of Supervisors on March 29, 2011 (Kern County 2010). The landowner will pay associated taxes, fees, and penalties that are needed to complete the cancellation process.

4.2.2.1 Solar Sites

Under the No Action Alternative, the Proposed Action would not occur. The inactive farmland is unlikely to become productive, because of the lack of water for irrigation or grazing. Inactive agricultural lands would remain under the classification of Farmlands by the State. Because the land is currently under nonrenewal of the Williamson Act, the contract would not be renewed. Although the status of the land as farmland would not change, the land could be converted to another use, including commercial, industrial, mining, or energy production (solar or wind turbines) if another project were proposed. Roadways, access areas, solar panels, associated infrastructure and buildings would not be constructed for the proposed Project. If the Proposed Action did not occur no effects to agricultural resources would result under this Alternative.

4.2.2.2 Conservation Areas

Under the No Action Alternative, no changes in land use that are associated with the project would occur. Vacant agricultural lands would remain under the classification of Farmlands, but would most likely not become productive. Areas where agricultural production occurred in the past might continue to be disked and tilled, so that native vegetation would be removed. No Conservation Areas would be established, and the land would most likely remain fallow; neither agriculturally productive nor conducive to natural vegetation or wildlife. Unless another project was proposed, no effects to agricultural resources would occur under this Alternative.

4.2.2.3 Mitigation Measures

There are no mitigation measures imposed under the No Action Alternative.

4.2.2.4 Cumulative Effect

The geographic scope for considering cumulative effects on agriculture is not limited to the extent of the Covered Lands, but to Kern County as a whole. The loss of Farmland to “conversion to another use” is tracked by the State in individual counties. Kern County reported in 2009 that a large number of property owners decided not to renew contracted acreage, resulting in a loss of 14,008 acres of prime and non-prime farmland that year under NRCS criteria. Typically, but not always, “conversion to another use” indicates that lands have been sold for use for industrial, commercial, or residential development and is no longer available for agricultural use. This has proven to be a trend that occurred both before and after 2009. In the Covered Lands and the surrounding areas, landowners who do not have access to dependable irrigation water have chosen to let lands remain vacant or fallow. Although these lands are not productive, they remain classified as “farmland” by the County and the State until/unless “converted to another use.”

Lands to be used for this and other solar projects in the County are considered “farmlands” in the State NRCS program. As discussed above, the Covered Lands are considered by NRCS as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Grazing Land, and a small amount of Vacant or Disturbed Land and Nonagricultural and Natural Vegetation. The Covered Lands have not been farmed for at least 10 years and would not be farmed in the foreseeable future because they lack a developed, dependable irrigation water supply. Soils and water play an important role in agricultural production in the vicinity of the Covered Lands. The Covered Lands are not irrigated, and the soils, according to the Class 7 description, “have very severe limitations that make them unsuited to cultivation and that restrict their use largely to pasture or range, woodland or wildlife habitat.” Therefore, the “farmlands” do not meet the NRCS criteria for Prime farmlands. Because the lands have not been actively farmed in the recent past, solar projects would not decrease productivity on these sites. Should projects occur on lands currently utilized as irrigated farmlands, however, the acres in agricultural production would decrease during the lifetime of the project.

Other solar projects, if approved would also utilize agricultural land for solar facility use. The Covered Lands are zoned A (Exclusive Agriculture) or A-1 (Limited Agriculture) by the Kern County Zoning Ordinance. Solar facilities are permitted on properties zoned for exclusive agricultural use with approval of a conditional use permit (CUP). As with this proposed Project, other proposed solar projects would require CUP approval, and would be active for a period of approximately 30 years, which would not be considered a permanent conversion of agricultural land to a non-agricultural designation under the Kern County General Plan.

The proposed Project, unlike other proposed solar facilities in the area, is guided by the HCP, which outlines the use of the land during and after the life of the Project. The Draft HCP requires that Conservation Areas be set aside in perpetuity, and that upon decommissioning the

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Solar Sites also be set aside in perpetuity, making them unavailable for agricultural production. Typically, solar facility projects would not conflict with the County's General Plan or zoning ordinances regarding the use of the agricultural lands for solar facilities, although the proposed solar complex would be considered as a permanent conversion of agricultural land to a non-agricultural designation under the HCP.

Additionally, the Covered Lands were under Williamson Contract, and a certificate of cancellation was issued in 2011 by the Kern County Board of Supervisors. In order to cancel the contract, the landowner must provide the County with evidence that farming is impractical or infeasible. In this case, because irrigation water was not available, the land could not support row crops, orchards, or livestock or other agricultural production. The cancellation will be complete upon payment by the landowner of fees associated with the request for cancellation. The overall development of Kern County, including implementation of related solar projects, could result in the cancellation of Williamson Act contracts on additional parcels that are greater than 100 acres, when conditions there are similar to those of the Covered Lands. Typically, once a Project has been decommissioned, the land would once again be available for farming activities, so that it could once again be entered into contract under the Williamson Act. Because other solar projects would be limited to twenty to thirty years, at which time the lands would be available for agricultural production, the cumulative effect on agricultural resources resulting from solar projects is temporary, and limited to the duration of the Project. However, for the proposed Project, unless irrigation water became available in the future, or it was otherwise determined upon decommissioning of the project that farmland was the best use of the land, the removal of the Covered Lands from Williamson Act contract would remain in effect whether or not the Project occurred. The cancellation does not automatically withdraw the land from agricultural use, and it could be cultivated if water became available.

Under the No Action Alternative, no conditional use permit would be required by the County in support of a solar facility on farmland. It is likely that the Covered Lands would be remain designated as farmland under the County's General Plan but would remain uncultivated, unless a source of reliable irrigation water were found. Because water allocation for that area is not expected to increase, and the available water has been fully allocated, a source of additional reliable water is unlikely.

In summary, because the land is not currently under cultivation there would be no loss of productive farmland as a result of the Project or similar projects. A change in designation of the land from "farmland" to "grazing" land by the State would occur as a result of their review of the soils, lack of irrigation water, and other criteria, and not as a result of the proposed Project or similar solar projects. Cancellation of the Williamson Act contract, initiated after the project was proposed, would not be reversed if the Project did not go forward. Although the loss of advantages of the Williamson Act contract would affect the landowner, there would be no

change in the ability of the land to be agriculturally productive unless/until the landowner leased the land for other purposes, such as the temporary use for solar facilities. Therefore, cumulative effects under the No Action Alternative would be less than significant.

4.2.3 Proposed HCP Alternative

4.2.3.1 Solar Sites

The Covered Lands are primarily vacant, undeveloped agricultural land, with scattered agricultural buildings, residences, and oil and gas operations. The entirety of the Covered Lands is considered agricultural by the State and County.

Construction Phase

During the construction phase, approximately 3,007.8 acres of the Covered Lands will be converted to solar development, and another 33 acres will be converted to Movement Corridors to allow wildlife continued access to nearby habitat for foraging, mating, denning, etc. Vegetation would be removed, and roadways, access roads, parking areas, and staging and laydown areas would be installed. Once these tasks were completed, foundations for the solar array foundations and paved building sites would be constructed.

Movement corridors will also be established to allow wildlife connectivity between the sites and nearby native habitats. These Movement Corridors will be established along the perimeters of four of the Solar Sites (Sites 2-S, 3-S, 4-S, and 7-S). Within the 50-foot wide Movement Corridors, artificial raised earthen berms will be created to provide refugia for small mammals during flooding events, and to provide burrowing, denning, and perching opportunities for a variety of species. A general access dirt road may be maintained alongside a drainage ditch created at the base of the berm. The berms would be linear to facilitate construction by mechanical means, and gaps will be provided at strategic locations to allow flood waters to pass without causing undue damage to the berms.

Land designated as “Agricultural” or “farmland,” but which is vacant or uncultivated would be altered to accommodate development of solar facilities during the Construction Phase. Although the Covered Lands are designated as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland in accordance with the FMMP, the parcels do not otherwise meet the criteria established by the NRCS for each of these designations. The Covered Lands have not been cultivated since at least 2004 and therefore, have not been cultivated within four years of the 2010 mapping date. Additionally, under the NRCS soils criteria, successful agricultural production depends not only on the suitability of the land for agricultural production, but also the existence of a developed and dependable irrigation water supply. In past years, several parcels have been leased for the commercial cultivation of crops that were irrigated using a portion of the leaseholder’s water allotment. The property owner has removed any water allocation from

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all the subject properties. Because water for irrigation is not available and is not likely to be available in the foreseeable future, agricultural productivity of the land is restricted and cultivation of crops is not feasible. If it were irrigated, “farmland” as defined under the FMMP would include portions of the Covered Lands.

As noted earlier, without irrigation, the quality of the soil on the Solar Sites is not considered productive agricultural land, and its conversion to use for the Solar Sites would be considered a minimal effect. Additionally, the use of the land, designated as “Agricultural” by the Kern County General Plan, is permitted for solar facilities (page 53, Map Provisions: Resource). Because no farming has occurred on these lands for at least 10 years, and the lands do not meet the NRCS criteria for “farmlands,” covered activities during the Construction Phase will have a minimal effect on agriculture.

Operations Phase

During the Operations Phase, the land designated for Solar Sites would be converted from vacant, uncultivated land for use as roadways, access areas, parking, concrete pads for solar facilities and associated infrastructure, buildings, and the Movement Corridors. The lands would remain in use as a solar facility throughout the life of the Project (20-30 years). The Solar Sites would be converted to conservation areas in perpetuity upon decommissioning, making them unavailable for agricultural production in the future. However, because no farming has occurred on these lands for at least 10 years, and the lands do not meet the NRCS criteria for “farmlands,” covered activities during the Operations Phase will have a minimal effect on agriculture.

4.2.3.2 Conservation Areas

Construction Phase

Approximately 1,895 acres of land designated as agricultural, will be set aside as Conservation Areas, and will be left as fallow. It will not be disked or tilled, although some of this acreage will be seeded to encourage native habitat to re-establish during the construction phase of the Project. The intent of the Conservation Areas is to encourage the return of native vegetation and wildlife, which will maintain the scenic value and character of the sites. Natural vegetation will be encouraged within all sites in the Conservation Area, and seeding will occur where needed to re-establish a semblance of native habitat. Within two to three years of cessation of disking, re-vegetation will occur, so that vegetation will be well-established by the completion of the eight-to-ten year construction phase. Approximately 720 acres of the Conservation Areas are considered off site conservation land, including a 640-acre parcel south of SR 166. Because no farming has occurred on these lands for at least 10 years, and the lands do not meet the NRCS criteria for “farmlands,” covered activities during the Construction Phase will have a minimal effect on agriculture.

Operations Phase

During the Operations Phase, the land designated for Conservation Areas would either be left untreated, or be seeded to encourage native vegetation to re-establish. This treatment of the Conservation Areas would continue throughout the Operations Phase of the Project. Where needed, sheep grazing would occur to control vegetative growth, and limit the maximum height of grasses and forbes.

The Conservation Areas would remain as such in perpetuity, making them unavailable for agricultural production in the future. However, because no farming has occurred on these lands for at least 10 years, and the lands do not meet the NRCS criteria for “farmlands,” covered activities during the Operations Phase will have a minimal effect on agriculture.

4.2.3.3 Mitigation Measures

Compliance with the goals, policies, and implementation measures of the Kern County General Plan is required. No additional mitigation measures are proposed.

4.2.3.4 Cumulative Effect

The geographic scope for considering cumulative effects on agriculture is not limited to the extent of the Covered Lands, but to Kern County as a whole. The Covered Lands, and much of the surrounding land in this portion of the county are zoned A (Exclusive Agriculture) or A-1 (Limited Agriculture) by the Kern County Zoning Ordinance. Solar facilities are permitted on properties zoned for exclusive agricultural use with approval of a conditional use permit (CUP). As with this proposed Project, other proposed solar projects would require CUP approval, and would be active for a period of approximately 30 years, which would not be considered a permanent conversion of agricultural land to a non-agricultural designation under the Kern County General Plan.

Four other solar projects, totaling approximately 695 acres are proposed in Kern County, in the areas in and north of Taft. The Draft HCP requires that Conservation Areas be set aside in perpetuity, and that upon decommissioning the Solar Sites also be set aside in perpetuity, making them unavailable for agricultural production. Typically, solar facility projects would not conflict with the County’s General Plan (page 53) or zoning ordinances regarding the use of the agricultural lands for solar facilities, although this Project would be considered as a permanent conversion of agricultural land to a non-agricultural designation under the Draft HCP.

Agriculture can be compared under three different criteria: designation as Farmland by the State NRCD using its definition; productivity of the land as agricultural; and land under Williamson Act contract. Cumulative effects of the proposed Project and similar solar projects in the region can be considered under these criteria.

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As noted under the No Action Alternative, the loss of Farmland to “conversion to another use” is tracked by the State in individual counties. Lands to be used for this and other solar projects in the County are considered “farmlands” in the State NRCS program. Lands in this area may not meet the necessary NRCS criteria for Prime or other farmland designations, especially when irrigation water is not available, so that they should be designated as “grazing land” instead. The proposed Project and similar solar facilities in the area will not cumulatively affect the amount of land designated as “Prime,” “Important” or Unique, under the NRCS definitions.

Because the Covered Lands have not been actively farmed in the recent past, the proposed solar project would not decrease productivity on these sites. However, should similar projects occur on lands currently utilized as irrigated farmlands, the acres in agricultural production would decrease during the lifetime of each project.

Additionally, the Covered Lands were under Williamson Contract, and a certificate of cancellation was issued in 2011 by the Kern County Board of Supervisors. The cancellation will be complete upon payment by the landowner of fees associated with the request for cancellation. The overall development of Kern County, including implementation of related solar projects, could result in the cancellation of Williamson Act contracts on additional parcels that are greater than 100 acres. Typically, once solar projects have been decommissioned after twenty to thirty years, the lands would once again be available for farming activities, so that they could once again be entered into contract under the Williamson Act. When irrigation water is available, the cumulative effect on agricultural resources under Williamson Act resulting from solar projects is temporary, and limited to the duration of the Project. However, it is anticipated that with the proposed Project, the removal of the Covered Lands from Williamson Act contract will remain in effect after decommissioning. As the Covered Lands would remain as conservation areas in perpetuity, the lands would not be available for Williamson Act contract once the Project has been decommissioned. Therefore, cumulative effects on farmlands under Williamson Act contract would generally be temporary, based on the life of each project. One other project of approximately 253 acres has requested cancellation of a Williamson Act contract. It is unknown whether this property includes irrigated farmland, and whether or not this land is currently under production.

Cumulative effects from the Reduced Permit Area alternative would be similar to those under the Proposed HCP alternative, although fewer acres would be affected. Cumulative effects to farmlands under the County designation would be permitted with a CUP, and would not conflict with the Kern County General Plan or Zoning Ordinances. Under the Draft HCP for the proposed Project only, lands converted to Conservation Areas in perpetuity would be considered a permanent conversion of agricultural land to non-agricultural designation. Prime and other Farmlands as designated by NRCS do not meet the agency’s criteria for these designations, and would most likely be determined to be “grazing” land. The “farmland” or “grazing” lands with

solar facilities would be considered a conversion of farmland to other use for the life of the solar projects. The proposed Project will not affect the number of acres of productive farmland in the area, as none are, or have been under production for many years. However, any lands under irrigated cultivation that were utilized for other solar projects would become unavailable for the duration of the project, resulting in a temporary reduction in acres of productive farmland. Farmlands in Williamson Act contract would be cancelled for at least the duration of the project. Therefore, cumulative effects to agricultural resources would be temporary but significant for the duration of the projects.

4.2.4 Reduced Permit Area Alternative

4.2.4.1 Solar Sites

The entirety of the Covered Lands is considered agricultural by the State and County. Under the Reduced Permit Area Alternative, the Permit Area would be reduced from 5,784.3 acres to 3,682 acres by removing from the Project: Sites 4-S/4-M (652.5 acres), 6-S (320.9 acres), 7-S/7-M (481.2 acres) and 17-C (647.7 acres) (Refer to Figure 2-2 in Chapter 2.0). The lands excluded from the Permit Area would likely remain vacant and would continue to be disked on a regular basis for weed control. If water became available, these lands would likely be converted to active agricultural production.

Construction Phase

During the construction phase, approximately 2,343.7 acres of the Covered Lands would be converted to solar development. Vegetation would be removed, and roadways, access roads, parking areas, and staging and laydown areas would be installed. Once these tasks were completed, foundations for the solar array foundations and paved building sites would be constructed.

Movement corridors would also be established to allow wildlife connectivity between the sites and nearby native habitats. These Movement Corridors would be established along the perimeters of Solar Sites 2-S and 3-S. Within the 50-foot wide Movement Corridors, artificial raised earthen berms would be created to provide refugia for small mammals during flooding events, and to provide burrowing, denning, and perching opportunities for a variety of species. A general access dirt road might be maintained alongside a drainage ditch created at the base of the berm. The berms would be linear to facilitate construction by mechanical means, and gaps would be provided at strategic locations to allow flood waters to pass without causing undue damage to the berms.

Land designated as “Agricultural” or “farmland,” but which is vacant or uncultivated would be altered to accommodate development of solar facilities during the Construction Phase. Although the Covered Lands are designated as Prime Farmland, Farmland of Statewide Importance, and

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Unique Farmland in accordance with the FMMP, the parcels do not otherwise meet the criteria established by the NRCS for each of these designations. The Covered Lands have not been cultivated since at least 2004 and therefore, have not been cultivated within four years of the current 2010 mapping date. Additionally, under the NRCS soils criteria, successful agricultural production depends not only on the suitability of the land for agricultural production, but also the existence of a developed and dependable irrigation water supply. In past years, several parcels have been leased for the commercial cultivation of crops that were irrigated using a portion of the leaseholder's water allotment. The property owner has removed any water allocation from all the subject properties. Because water for irrigation is not available and is not likely to be available in the foreseeable future, agricultural productivity of the land is restricted and cultivation of crops is not feasible. If it were irrigated, "farmland" as defined under the FMMP would include portions of the Covered Lands.

As noted earlier, without irrigation, the rankings for soils on the Solar Sites are not considered sufficient for productive agricultural land, and its conversion to use for the Solar Sites would not be considered a substantial effect. Additionally, the use of the land, designated as "Agricultural" by the Kern County General Plan, is permitted for solar facilities. Because no farming has occurred on these lands for at least 10 years, and the lands do not meet the NRCS criteria for "farmlands" activities during the Construction Phase will have a minimal effect on agriculture.

Operations Phase

During the Operations Phase, the land designated for Solar Sites would be converted from vacant, uncultivated land for use as roadways, access areas, parking, concrete pads for solar facilities and associated infrastructure, buildings, and the Movement Corridors. The Solar Sites would be converted to conservation areas in perpetuity upon decommissioning, making them unavailable for agricultural production in the future. However, because no farming has occurred on these lands for at least 10 years, and the lands do not meet the NRCS criteria for "farmlands" activities during the Operations Phase will have a minimal effect on agriculture.

4.2.4.2 Conservation Areas

Construction Phase

The approximate 647.7 acres of land designated as agricultural to be set aside as Conservation Areas would be left as fallow and would not be disked or tilled, and some areas would be seeded to encourage native habitat to re-establish during the construction phase of the Project. The intent of the Conservation Areas is to encourage the return of native vegetation and wildlife, which will maintain the scenic value and character of the sites. Natural vegetation will be encouraged within all sites in the Conservation Area, and seeding will occur where needed to re-establish a semblance of native habitat. Within two to three years of cessation of disking, re-vegetation will occur, so that vegetation will be well-established by the completion of the eight-

to-ten year construction phase. Because no farming has occurred on these lands for at least 10 years, and the lands do not meet the NRCS criteria for “farmlands,” activities during the Construction Phase will have a minimal effect on agriculture.

Operations Phase

During the Operations Phase, the land designated for Conservation Areas would be either left untreated, or would be seeded to encourage native vegetation to re-establish. This treatment of the Conservation Areas would continue throughout the Operations Phase of the Project. Where needed, sheep grazing would occur to control vegetative growth.

The lands would remain in the use throughout the life of the Project (20-30 years). The Solar Sites would be converted to conservation areas in perpetuity upon decommissioning, making them unavailable for agricultural production in the future. However, because no farming has occurred on these lands for at least 10 years, and the lands do not meet the NRCS criteria for “farmlands” activities during the Operations Phase will have a minimal effect on agriculture.

4.2.4.3 Mitigation Measures

Compliance with the goals, policies, and implementation measures of the Kern County General Plan is required. No additional mitigation measures are proposed.

4.2.4.4 Cumulative Effect

Cumulative effects from the Reduced Permit Area alternative would be similar to those under the Proposed HCP alternative, although fewer acres would be affected. Cumulative effects to farmlands under the County designation would be permitted with a CUP, and would not conflict with the Kern County General Plan or Zoning Ordinances. Under the Draft HCP for the proposed Project only, lands converted to Conservation Areas in perpetuity would be considered a permanent conversion of agricultural land to non-agricultural designation. Prime and other Farmlands as designated by NRCS do not meet the agency’s criteria for these designations, and would most likely be determined to be “grazing” land. The “farmland” or “grazing” lands with solar facilities would be considered a conversion of farmland to other use for the life of the solar projects. The proposed Project will not affect the number of acres of productive farmland in the area, as none are, or have been under production for many years. However, any lands under irrigated cultivation that were utilized for other solar projects would become unavailable for the duration of the project, resulting in a temporary reduction in acres of productive farmland. Farmlands in Williamson Act contract would be cancelled for at least the duration of the project. Therefore, cumulative effects to agricultural resources would be temporary but significant for the duration of the projects.

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4.2.5 Comparison of Alternatives

A summary of results comparing the No Action Alternative to the Proposed HCP Alternative and Reduced Permit Area Alternative is shown in Table 4.2-1. Each of the potential effect areas, including the Solar Sites, the Conservation Areas, and the cumulative effects is measured with a less, more, or similar effect ranking as compared to the No Action Alternative.

Table 4.2-1
Comparison of Alternatives to the No Action Alternative

Potential Effect	No Action	Proposed HCP	Reduced Permit Area
Solar Panel Areas	-		
Construction Phase	-	Similar	Similar
Operations Phase	-	Similar	Similar
Conservation Areas			
Construction Phase	-	Similar	Similar
Operations Phase	-	Similar	Similar
Cumulative Effect	-	More	More

Source: Kern County, 2010.

Agriculture can be compared under three different criteria: designation as Farmland by the State NRCD using its definition; productivity of the land as agricultural; and land under Williamson Act contract.

Most of the acreage within the Covered Lands is designated by the State as Prime Farmland or Farmland of Statewide Importance. However, the land does not meet NRCD criteria under the definition of Prime Farmland, as it has neither been farmed within the required period, nor been under irrigation. Land classified as Farmland of Statewide Importance is typically used for grazing land, although this has not been the case within the Covered Lands, where the land has remained fallow or vacant. If the land met the NRCS criteria for Prime Farmland, and was actively farmed, the No Action Alternative would have the least effect, with the Proposed HCP having the greatest effect, as the land would have to be reclassified as “converted to another use.” However, because the land is not under agricultural production, the proposed Project would have no effect on the designation as “Farmland” under any of the Alternatives. Cumulatively, the Project would not contribute to a change in designation. If other projects required the conversion of irrigated farmland from Prime Farmland to another use, however, those projects would individually contribute to the change in designation.

In terms of agricultural production on the Covered Lands, none of the Alternatives will affect the lands because none of the acreage is, or has been under agricultural production for some time. It is unlikely that the land will become productive, as a source of reliable irrigation is improbable. Under the No Action Alternative, no changes in land use would occur. The lands designated as agricultural would remain vacant, uncultivated farmland. Under the Proposed HCP Alternative and the Reduced Permit Area Alternative, the land would change from uncultivated farmland to

Solar Sites and Conservation Areas Within both the Solar Sites and the Conservation Areas, agricultural production would not occur once the construction phase began, as all the lands will be converted to conservation areas in perpetuity once the Project has been decommissioned. None of the land is under currently under agricultural production, so that the Action Alternatives would have an effect on land productivity only if the landowner had intended to use the land for crop production or grazing in the future. Farming would be dependent on a reliable source of irrigation water was unlikely to become available. If another proposed project required the conversion of productive, irrigated farmland within the region, it would contribute to a cumulative, temporary reduction in agricultural production for the duration of that project. Most of the land within the Covered Lands was formerly included in Williamson Act contracts, as are many of the surrounding parcels. However, the landowner's request for cancellation of the Williamson Act contracts was approved by the Kern County Board of Supervisors in 2011. The request for cancellation occurred after the land was considered for the proposed solar Project, but before the Project was approved. The County and State data, when next updated, will reflect the Williamson Act cancellation as a reduction of total acreage under contract. The cancellation will remain in effect regardless of whether the Project is approved and goes forward. Therefore, none of the Alternatives will have an effect on agriculture as tracked under Williamson Act contracts by Kern County and the State.

Other projects may or may not contribute to a cumulative decrease in County agricultural acreage under Williamson Act contract. If a landowner in the area determines that his/her land will not support agriculture, he/she can petition the County to cancel the contract, regardless of whether the land is proposed for another use. However, there are criteria that must be met, and fees and penalties to be paid in order for the cancellation to occur. This is intended to dissuade landowners from cancelling contracts on lands where agriculture is viable. Referring to Table 4.2-1, the ranking of "more" effects to agricultural resources from cumulative projects would occur only if the lands were currently 1) under agricultural production, or 2) irrigated and met the criteria for Prime Farmland under the NRCS, or 3) cancelled under Williamson Act contract for the purpose of installing and operating solar projects. In any of these cases the project would make the land unavailable for agriculture for at least the duration of the project, which would be considered a temporary effect to agricultural resources.

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4.3 AIR QUALITY AND GREENHOUSE GAS

4.3.1 Overview

This section describes the potential effects of the alternatives on air quality in the region compared to existing conditions when the Notice of Intent was issued. The analysis of air quality focuses on the issues that arise within the Covered Lands. Cumulative effects to air quality usually occur because they are often global, regional, and site specific. Effects of other projects in combination with the Covered Activities analyzed in this EIS create greater effects.

4.3.2 Methodology

Methodology for determining potential effects associated with Covered Activities on air quality includes an examination of how each Alternative would contribute to exceeding applicable air quality thresholds resulting from construction and/or operations, possible exposure to toxic air contaminants (TACs), and carbon monoxide hotspots. Exposures to objectionable odors were eliminated from the scope of analysis based on the findings made in the Notice of Preparation/Initial Study published for the 2010 EIR (Kern County 2010). The EIR utilized the "Urban Emissions Model" (URBEMIS) (version 9.2.4) and Emissions Factors 2007 (EMFAC2007) for assessing criteria air pollutants¹. Due to a lack of precise construction details available during analysis, URBEMIS defaults were utilized for equipment values for short-term construction emissions. Project specific GHG emissions were estimated using the California Climate Action Registry General Reporting Protocol and the URBEMIS model (version 9.2.4) which employs on- and off-road equipment emission factors from the California Air Resources Board's (CARB's) EMFAC 2007 and OFFROAD 2007 models. Results are carried over to the EIS as part of the methodology. The EIR concluded that significant and unavoidable effects would occur from the Proposed Action activities. However, since the Permit Area of the HCP has been reduced to 5,784.3 acres, those same effects would also be reduced as mentioned in Section 4.3.1.

¹ URBEMIS computer program that estimates construction, area source, and operational air pollution emissions from a wide variety of land use development projects in California, such as residential neighborhoods, shopping centers, office buildings, etc.(South Coast Air Management District 2008). The model also identifies mitigation measures and emission reductions associated with specific mitigation measures. The model uses the California Air Resources Board's EMFAC2007 model for on-road vehicle emissions and the OFFROAD2007 model for off-road vehicle emissions (California Air Resources Board 2013).

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Applicable Thresholds

NATIONAL

The General Conformity Rule ensures that federal actions comply with the national ambient air quality standards. In order to meet this CAA requirement, a federal agency must demonstrate that every action that it undertakes, approves, permits or supports will conform to the appropriate state implementation plan (SIP) (United States Environmental Protection, 2013). Table 4.3-1 lists the de minimis thresholds for the six criteria pollutants.

Table 4.3-1
De Minimis Level Thresholds

Pollutant	Area Type	Tons/Year
Ozone (VOC or NOx)	Serious nonattainment	50
	Severe nonattainment	25
	Extreme nonattainment	10
	Other areas outside an ozone transport region	100
Ozone (NOx)	Marginal and moderate nonattainment inside an ozone transport region	100
	Maintenance	100
Ozone (VOC)	Marginal and moderate nonattainment inside an ozone transport region	50
	Maintenance within an ozone transport region	50
	Maintenance outside an ozone transport region	100
Carbon monoxide, SO2 and NO2	All nonattainment & maintenance	100
PM-10	Serious nonattainment	70
	Moderate nonattainment and maintenance	100
Lead (Pb)	All nonattainment & maintenance	25

Source: United States Environmental Protection Agency, 2013a.

As discussed in Section 3.3.1.1 of this EIS, the Proposed Action is subject to the EPA’s “general conformity” rule because it is in nonattainment for ozone-eight hour and PM2.5. Conformity requirements only apply to nonattainment and maintenance pollutants. As defined by 40 CFR 93 § 153 (PDF) (4 pp, 52KB), *de minimis* levels are the minimum threshold for which a conformity determination must be performed for various criteria pollutants in various areas. These thresholds are listed in Table 4.3-1.

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STATE

CARB is the California agency responsible for the coordination and administration of both State and federal air pollution control programs within California. CARB performs the following functions: undertakes research, sets California Ambient Air Quality Standards (CAAQS), provides technical assistance to local air quality management districts and air pollution control districts, compiles emission inventories, develops suggested control measures, and provides oversight of local programs.

Under the Cap and Trade Program, CARB has set 25,000 tons per year threshold. The proposed project does not meet the definition as a “Covered Entity” however, so is not subject to this threshold (California Air Resource Board 2012).

REGIONAL

The San Joaquin Valley Air Pollution Control District (SVAPCD) thresholds provide a useful method of assessing the magnitude of air quality effects of the various alternatives. Air district thresholds were designed for purposes of conducting analysis pursuant to the California Environmental Quality Act (CEQA), and are not specifically intended for use in National Environmental Policy Act (NEPA) analyses. However, in the absence of federal thresholds, they provide a helpful point of measurement to determine the magnitude of an alternative's effects on air resources. “In addition, these thresholds represent the generally accepted approach to determining whether a project’s emissions would result in a substantial contribution to existing violations of California or National Ambient Air Quality Standards (CAAQS or NAAQS) and are generally considered the most stringent thresholds available (U.S. Fish and Wildlife Service 2012).”

Each alternative is compared against the SVAPCD thresholds for criteria air pollutants and GHG emissions. Thresholds are included in the SJVAPCD’s 2002 Guide for Assessing and Mitigation Air Quality Impacts (GAMAQI) for air criteria pollutants. Table 4.3-2 lists each of the thresholds for the following pollutants: reactive organic gases (ROG), oxides of nitrogen (NOx), carbon monoxide (CO), sulfur oxides (SOx), particulate matter less than 10 microns in diameter (PM10), and particulate matter less than 2.5 microns in diameter (PM2.5).

Table 4.3-2
San Joaquin Valley Air Pollution Control Board Thresholds

	ROG	NOx	CO	SOx	PM10	PM2.5
Criteria air pollutants	10 tons	10 tons	-	-	15 tons	-

Source: San Joaquin Valley Air Pollution Control District, 2002.

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As shown in the table, criteria air pollutants ROG and NO_x both have a significance level of 10 tons, and PM₁₀ is 15 tons. The SJVAPCD has not established regional emission thresholds for CO, PM_{2.5}, and SO_x.

The SJVAPCD does not have significance thresholds for GHG pollutants which includes: carbon dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), and fluorinated Gases (HFCs, PFCs, and SF₆). The County of Kern has not developed a quantified threshold of significance for GHG emissions either, but if a project is found to contribute to a net decrease in emissions, and is consistent with the adopted implementation of the CARB Assembly Bill (AB) 32 Scoping Plan, it is presumed to have minimal GHG effects (California Air Resources Board 2008).

Construction Assumptions

The construction assumptions for this EIS rely primarily on the default construction assumptions in URBEMIS. While these assumptions are representative for many development projects, use of the default in URBEMIS may over or underestimate the activity levels associated with actual development under the Alternatives. The following construction and operational sources and activities were analyzed for emissions:

- Onsite construction equipment emissions were estimated using URBEMIS 2007 v9.2.4.
 - Paving of the access road was estimated to cover 10 acres and would last 1–2 months at the beginning of construction in 2011.
 - Construction of solar arrays was estimated to be constructed at a rate of 757.5 acres per year over 8 years from 2011 through 2018.
- Construction employees' vehicular emissions were estimated using EMFAC2007 based on miles traveled.
 - An average of 200 employees per day was assumed.
 - Employees were estimated to travel a roundtrip distance of 40 miles per day during 260 working days per year (Workers will originate from Maricopa, Taft, and Bakersfield. However, to account for the worst case scenario, the roundtrips are estimated from Old River Road to Bakersfield).
- Construction delivery truck emissions were estimated using EMFAC2007 based on miles traveled.
 - Twelve delivery trucks per 1 MW was assumed.

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- Delivery trucks were estimated to travel from the Port of Long Beach with a roundtrip distance of 260 miles per day during 260 working days per year.

Operation Assumptions

Long-term emissions are related to the activities that will occur indefinitely because of project operations and are the primary focus of the SJVAPCD. Long-term emissions are caused by operational (mobile) sources and area (heating, cooling, and structural) sources. However, the project's long-term emission would be minimal because there will be no emissions associated with the operation of the facility other than occasional maintenance that will require employees to travel to the site. Otherwise, the site will be monitored from a remote location with no onsite emission emitting equipment.

- Operational water truck emissions were estimated using EMFAC2007.
 - Module cleaning may require additional negligible numbers of personnel for short periods of time would require a total of 4,412 truck trips per year. This averages out to approximately 12 trips per day.
 - Based on the location of the available water wells proposed to provide water for panel cleaning, it is anticipated that the trucks would travel approximately 5 miles between wells and the solar facilities.
- Operational worker truck emissions were estimated using EMFAC2007.
 - It was assumed that two worker trucks would service the project site.
 - Worker trucks were estimated to travel a total of 4 miles per truck per day twice a year on site.
 - Worker trucks were estimated to travel a total of 60 miles per truck per day twice a year off site.
- Operational maintenance truck emissions were estimated using EMFAC2007.
 - It was assumed that one maintenance truck would service the project site.
 - The maintenance truck was estimated to travel a total of 4 miles per day twice a year on site.
 - The maintenance truck was estimated to travel a total of 60 miles per day twice a year off site.

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- Operational fugitive dust emissions were estimated using AP-42 Chapter 13, Section 13.2.2, Equation 1a and 1b for vehicular traffic on dirt roads within the project site.

Because the precise construction details about the Covered Activities were unknown at the time this analysis was conducted, the default equipment values provided in URBEMIS were used to estimate the (short-term) construction emissions as mentioned before. An average of 200 employees was estimated and, to be conservative, all employee emissions were calculated based on a 40-mile roundtrip (to and from Bakersfield). Although emissions from the project are expected to vary substantially from day to day, they are expected to be approximately equal over the course of the estimated 8-year construction period. Many variables are factored into the calculation of construction emissions, such as length of the construction period, number of each type of equipment, site characteristics, area climate, and construction personnel activities. In order to present the most conservative approach to estimating construction emissions from the project, all equipment was assumed to be in use 6 to 8 cumulative hours per day at full power, which is the URBEMIS default. In reality, much of this equipment will be used substantially less than this as a result of idling time, operator breaks, equipment breakdowns, etc.

Attainment

Chapter 3.0, Section 3.3 of this EIS discusses the ambient air quality standards and nonattainment classifications of the federal, State, and regional agencies. The USEPA has designated the San Joaquin Valley Air Basin (SJVAB) as an “extreme” nonattainment area under the federal 8-hour ozone standard, and is nonattainment for PM_{2.5}. CARB has designated the SJVAB as severe nonattainment under the 1-hour ozone designation, and as nonattainment for the State’s PM₁₀ and PM_{2.5} standards. The SJVAB meets the federal and State standards, or is unclassifiable for all other pollutants.

CONSTRUCTION EMISSIONS

The Covered Activities have the potential to generate construction emissions for the multi-phased development of solar facilities, including air pollutants such as ROG, NO_x, CO, PM₁₀, PM_{2.5}, and SO_x. Emissions from construction would result from fuel combustion and exhaust from construction equipment as well as vehicle traffic, grading, and the use of toxic materials (e.g., paints and lubricants). Based on the results of the detailed air quality impact analysis from the EIR, which demonstrate that effects would be below thresholds, construction emissions are expected to have a minimal effect that would violate air quality standards. However, a detailed project-level analysis would be required for each of the future developments within the program to determine the emissions relative to thresholds. Each subsequent project would be required to demonstrate that its effects on air quality, through design and/or mitigation, would remain below established levels of significance. Therefore, with mitigation, construction would not violate air quality standards or contribute substantially to an existing or projected air quality standard.

OPERATION EMISSIONS

During operations, employees traveling to the site occasionally to perform maintenance would result in 6 metric tons of emissions. Otherwise, the site will be monitored from a remote location with no onsite emission emitting equipment.

Based on the results of the detailed air quality impact analysis for the project-level parcels, which demonstrate that effects would be below thresholds, operational emissions are not expected to violate air quality standards. However, a detailed project-level analysis would be required for each of the future developments to determine the emissions relative to thresholds. Each subsequent project development would be required to demonstrate that its effects on air quality, through design and/or mitigation, would remain below established levels of significance. Therefore with mitigation, operation of the Proposed Action would not violate or contribute substantially to an existing or projected air quality standard.

For operations of the project, it is anticipated that electricity generated from the project will reduce demand on the electrical generating grid in the future. The potential reductions in demand for electricity generation using fossil fuels could, but not necessarily, result in a reduction in GHGs for the Permit Area.

EXPOSURE OF SENSITIVE RECEPTORS

There are some houses scattered throughout the surrounding area of the Covered Lands, and the community of Maricopa is approximately 5 miles southwest. The closest home is located north of South Lake Road, adjacent to assessor's parcel number (APN) 220-170-07. The second closest home is located on the southeastern corner of Gardner Field Road and Basic School Road, approximately 0.5 mile south of APN 220-170-07. Effects on sensitive receptors, particularly from dust, would vary depending on the level and type of activity, the silt content of the soil and prevailing weather.

One of the health effects that have been associated with ground disturbance in various locations around Kern County is Valley Fever. Valley Fever is caused by *Coccidioides*, which is a fungus found in the soil of dry, low rainfall areas (Centers for Disease Control and Prevention 2012). "The sickness is acquired by inhaling one or more airborne spores of the fungus *Coccidioides* spp. Dissemination is the spread of the fungal infection from the lungs to other parts of the body. The most common sites of dissemination in Valley Fever are skin, bones, joints and brain meninges. Cocci meningitis is the most lethal (University of Arizona 2010)." According to the University of Arizona which is the leading expert on Valley Fever, the spores are found in desert soils. Desert soils are classified in the United States as Aridisols. Because of the dry climate in which they are found, Aridisols are mainly used for range, wildlife, and recreation, and not used for agricultural production unless irrigation water is available.

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Aridisols are divided into 7 suborders: Cryids, Salids, Durids, Gypsid, Argids, Calcids, and Cambids. According to Section 3.4 of this EIS, the soil types found on the proposed project site consist of the following types:

- Cerini loam;
- Calflax loam;
- Excelsior fine sandy loam;
- Excelsior sandy loam;
- Fages clay;
- Posochanet associations;
- Posochanet silt loam (saline-sodic soil);
- Posochanet silty clay loam (saline-sodic soil);
- Tupman gravelly sandy loam, and
- Guijarral-Klipstein complex.

In addition, according to the Natural Resources Conservation Service's Percent of Land Area in Aridisols (4030) map which uses STATSGO data, the proposed project site is not identified as having Aridisols soils (Natural Resources Conservation Service 2002).

The Proposed Action would have minimal effects related to exposure of sensitive receptors to substantial pollutant concentrations. Implementation of required regulatory dust reduction measures would reduce the effects of fugitive dust on nearby receptors. As mentioned before, both short-term and long-term emissions are anticipated to be within SJVAPCD yearly thresholds.

4.3.3 No Action Alternative

This section summarizes the potential air quality effects associated with the No Action Alternative. As discussed in Section 2.3.2, the No Action Alternative assumes that the HCP would not be implemented, the proposed Incidental Take Permit (ITP) would not be issued, and the Covered Activities for the Maricopa Sun Solar complex would not occur. The 5,784.3 acres identified as the Permit Area would likely remain vacant, the 1894.4 acres identified as Conservation Sites would not be permanently conserved, and the proposed Conservation Management Plan would not be implemented. As a result, there would be no conservation benefit to Covered Species or other listed or sensitive species as a result of the Proposed Action.

Agricultural activities, including grazing or disking, would likely continue, resulting in reduced air quality as a result of vegetation removal, soil disturbance, and soil compaction.

4.3.3.1 Construction and Operation Emissions

Under the No Action Alternative, NO_x and PM_{2.5} emissions, which could result in substantial effects on air quality in the area, would not be generated. Short-term construction emissions would not contribute to an existing or projected air quality violation of PM_{2.5} or ozone standards because no short-term construction would occur. Thus, unavoidable cumulative air quality effects would be avoided under this alternative.

The No Action Alternative would not involve construction activities or operation of solar generating facilities; therefore, heavy equipment operation, truck deliveries, and trips by commuting construction workers would not be associated with this Alternative. Construction emissions that contribute to GHGs would be eliminated. However, the potential offset or displacement of GHGs from operation of the solar power generating facility, compared with traditional gas or coal-fired power plants, would not be realized. Specifically, future gas or coal-fired power plants may be built to support energy needs. Although the EPA announced its first steps under President Obama's Climate Action Plan to reduce carbon pollution from power plants (including new coal and natural gas), GHG emissions from both sources would still be emitted, but at a lower rate (United States Environmental Protection Agency 2013b). The GHG effects from this alternative could therefore end up being greater than those of the Proposed HCP Alternative.

4.3.3.2 Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

The No Action Alternative would not affect any sensitive receptors as no new unpermitted uses would occur.

4.3.3.3 Mitigation Measures

There are no mitigation measures imposed under the No Action Alternative.

4.3.3.4 Cumulative Effect

The geographic scope for cumulative air quality effects is a 6-mile radius for regional effects and a 1-mile radius for effects on sensitive receptors. However, greenhouse gas emissions are a global problem. As discussed above, the project area is in nonattainment of both ozone and PM_{2.5}. Air quality effects from the Proposed Action are global in nature, but under the No Action Alternative the project would not occur. The site would likely remain vacant, or periodical agriculture activities may occur. Under the No Action Alternative, NO_x and PM_{2.5} emissions, which could result in substantial effects on air quality in the area, would not be generated. Short-term construction emissions would not contribute to existing or projected air

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quality violations because no short-term construction will occur. Thus, unavoidable cumulative air quality effects would be avoided under this alternative.

4.3.4 Proposed HCP Alternative

This section summarizes the potential air quality effects associated with the Proposed HCP Alternative. As discussed in Chapter 2.0, Section 2.3.2 of this EIS, the Proposed HCP Alternative assumes that the HCP would be implemented, the proposed Incidental Take Permit (ITP) would be issued, and the Covered Activities for the Maricopa Sun Solar complex would occur. Activities included in the HCP would include the following: (1) pre-construction, construction, operations and maintenance, and decommissioning activities within Solar Sites; (2) management and maintenance activities associated with Movement Corridors and Conservation Sites, including monitoring and reporting activities; and (3) activities associated with implementation of the conservation program specified in this HCP.

4.3.4.1 Construction and Operation Emissions

As noted in Section 3.3 of this EIS, the SJVAB is a nonattainment area for federal 8-hour ozone and PM_{2.5} standards and State 1-hour ozone, 8-hour ozone, PM₁₀, and PM_{2.5} standards. The Proposed HCP Alternative would contribute to the nonattainment while the No Action Alternative would not. Project construction and operational emissions of these pollutants would be below SJVAPCD annual thresholds. Due to the SJVAB nonattainment status though, increased emissions during construction would contribute to cumulative effects. To reduce cumulative effects, mitigation measures MM 4.3-1 through MM 4.3-2 would be incorporated into the Proposed Action.

Long-term emissions are related to the activities that will occur indefinitely. These types of emissions are caused by operational (mobile) sources and area (heating, cooling, and structural) sources. However, the project's long-term emission would be minimal because there will be no emissions associated with the operation of the facility other than occasional maintenance that will require travel to the site. Otherwise, the site will be monitored from a remote location with no onsite emission emitting equipment.

With this alternative a larger amount of disturbance would occur compared to the No Action Alternative and the Reduced Permit Area Alternative. The GHG effects from this Alternative would also be greater than those of the No Action Alternative and the Reduced Permit Area Alternative. However, with the Proposed HCP Alternative, the potential offset or displacement of GHGs from operation of the solar power generating facility, compared with traditional gas or coal-fired power plants, is much greater than under the Reduced Permit Area Alternative.

4.3.4.2 Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

As mentioned previously, there are some houses scattered throughout the surrounding area of the Covered Lands, and the community of Maricopa is approximately 5 miles southwest. The closest home is located north of South Lake Road, adjacent to assessor's parcel number (APN) 220-170-07. The second closest home is located on the southeastern corner of Gardner Field Road and Basic School Road, approximately 0.5 miles south of APN 220-170-07. Effects on sensitive receptors, particularly from dust, would vary depending on the activity, silt content of the soil, and prevailing weather. The implementation of required regulatory dust reduction measures would reduce the effects of fugitive dust on nearby receptors. As discussed above, the Proposed Action's construction and operational emissions of criteria pollutants is anticipated to be within SJVAPCD yearly thresholds and would not affect nearby sensitive receptors. Operation of the Proposed Action would have no air quality effects on nearby sensitive receptors. As mentioned previously, although the Permit Area is not underlain by the type of sediments that are known to contain Valley Fever spores, mitigation measures would reduce the amount of fugitive dust should the risk be present. The Proposed Action would have minimal effects related to exposure of sensitive receptors to substantial pollutant concentrations.

4.3.4.3 Mitigation Measures

MM 4.3-1: Prior to obtaining grading permits for development of Permit Area, the project operator shall provide detailed greenhouse gas impact studies that include a quantification of emissions and identification of appropriate design or mitigation measures to minimize emissions as necessary.

MM 4.3-2: Construction and operation of the proposed project shall be conducted in compliance with applicable rules and regulations set forth by the SJVAPCD. Dust control measures outlined below shall be implemented where they are applicable. The list shall not be considered all inclusive, and any other measures to reduce fugitive dust emissions not listed shall be encouraged.

- a. Land Preparation, Excavation, and/or Demolition. The following dust control measures shall be implemented:
 - i. All soil excavated or graded shall be sufficiently watered to prevent excessive dust. Watering shall occur as needed with complete coverage of disturbed soil areas. Watering shall take place a minimum of twice daily on unpaved/untreated roads and on disturbed soil areas with active operations.
 - ii. All clearing, grading, earth moving, and excavation activities shall cease during periods of winds greater than 20 miles per hour (averaged over 1 hour), if disturbed

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- material is easily windblown, or when dust plumes of 20% or greater opacity impact public roads, occupied structures, or neighboring property.
- iii. All fine material transported off site shall be either sufficiently watered or securely covered to prevent excessive dust.
 - iv. Areas disturbed by clearing, earth moving, or excavation activities shall be minimized at all times.
 - v. Stockpiles of soil or other fine loose material shall be stabilized by watering or other appropriate method to prevent wind-blown fugitive dust.
 - vi. Where acceptable to the fire department, weed control shall be accomplished by mowing instead of discing, thereby leaving the ground undisturbed and with a mulch covering.
- b. Site Construction. After clearing, grading, earth moving, and/or excavating, the following dust control practices shall be implemented:
- i. Once initial leveling has ceased, all inactive soil areas within the construction site shall be (1) seeded and watered until plant growth is evident, (2) treated with a dust palliative, or (3) watered twice daily until soil has sufficiently crusted to prevent fugitive dust emissions.
 - ii. All active disturbed soil areas shall be sufficiently watered at least twice daily to prevent excessive dust.
- c. Vehicular Activities. During all phases of construction, the following vehicular control measures shall be implemented:
- i. Onsite vehicle speed shall be limited to 15 miles per hour.
 - ii. All areas with vehicle traffic shall be paved, treated with dust palliatives, or watered a minimum of twice daily.
 - iii. Streets adjacent to the project site shall be kept clean, and project-related accumulated silt shall be removed.
 - iv. Access to the site shall be by means of an apron into the project site from adjoining surfaced roadways. The apron shall be surfaced or treated with dust palliatives. If

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operating on soils that cling to the wheels of vehicles, a grizzly² or other such device shall be used on the road exiting the project site, immediately prior to the pavement, in order to remove most of the soil material from vehicle tires.

MM 4.3-3: The project operator and/or its contractor(s) shall implement the following measures during construction of the proposed project:

- a. All equipment shall be maintained as recommended by manufacturer manuals.
- b. Equipment shall be shut down when not in use for extended periods of time.
- c. Construction equipment shall operate no longer than 8 cumulative hours per day.
- d. Electric equipment shall be used whenever possible in lieu of diesel- or gasoline-powered equipment.
- e. All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NOX emissions. On- and off-road diesel equipment shall use diesel particulate filters if permitted under manufacturer's guidelines.

On- and off-road diesel equipment shall use diesel particulate filters if permitted under manufacturer's guidelines.

4.3.4.4 Cumulative Effect

The Proposed Action would result in contributions to cumulative effects in combination with other future projects developed within Kern County. It cannot be determined with certainty that other projects would not be proposed and developed that, when combined with the Proposed Action, would result in construction emissions that could be cumulatively considerable. Therefore, it can be assumed that cumulative effects would result and would interfere with attainment of air quality standards. Construction emissions from these projects would be reduced by compliance with Rules 8021 and 9510, which are applicable to all projects, but some effect would remain.

² A device (i.e. rails, pipes, or grates) used to dislodge mud, dirt, and/or debris from the tires and undercarriage of motor vehicles and/or haul trucks prior to leaving the work site (San Joaquin Valley Air Pollution Control District 2001).

4.3.5 Reduced Permit Area Alternative

This section summarizes the potential air quality and GHG effects associated with the Reduced Permit Area Alternative. Under this Alternative the Permit Area would be reduced from 5,784.3 acres to 3,682 acres by removing the following sites: Sites 4-S/4-M (652.5 acres), 6-S (320.9 acres), 7-S/7-M (481.2 acres) and 17-C (647.7 acres). The lands excluded from the Permit Area would likely remain vacant and continue to be disked on a regular basis for weed control. If water became available, these lands may be converted to active agricultural production.

Under this alternative, there would be fewer disturbances of the Covered Species than under the Proposed Action because construction, operations, maintenance and decommissioning activities would occur over a smaller area.

4.3.5.1 Construction and Operation Emissions

With the Reduced Permit Area Alternative, the Proposed Action would result in contributing less to the nonattainment of federal 8-hour ozone and PM_{2.5} standards and State 1-hour ozone, 8-hour ozone, PM₁₀, and PM_{2.5} standards than the Proposed HCP Alternative. The Proposed Action's construction and operational emissions would be below the SJVAPCD's annual thresholds. Due to the SJVAB nonattainment status for these pollutants though, increased emissions during construction would contribute to cumulative effects. Although mitigation measures MM 4.3-1 through MM 4.3-3 would be incorporated into the Proposed Action, absent project-level analysis, the conservative conclusion is that cumulative effects would result and therefore will result in a cumulatively considerable net increase in pollutants for which the region is in nonattainment.

Long-term emissions are related to the activities that will occur indefinitely. These types of emissions are caused by operational (mobile) and area (heating, cooling, and structural) sources. However, the project's long-term emission would be minimal because there will be no emissions associated with the operation of the facility other than occasional maintenance that will require travel to the site. Otherwise, the site will be monitored from a remote location with no onsite emission emitting equipment.

With the Reduced Permit Area Alternative fewer disturbances would occur to Covered Lands. The GHG effects would also be greater. However, with this Alternative, the potential offset or displacement of GHGs from operation of the solar power generating facility, compared with traditional gas or coal-fired power plants, is realized.

4.3.5.2 Exposure of Sensitive Receptors to Substantial Pollutant Concentrations

There are some houses scattered throughout the surrounding area of the Covered Lands, and the community of Maricopa is approximately 5 miles southwest. The closest home is located north

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of South Lake Road, adjacent to assessor’s parcel number (APN) 220-170-07. The second closest home is located on the southeastern corner of Gardner Field Road and Basic School Road, approximately 0.5 miles south of APN 220-170-07. The same types of effects on sensitive receptors that would occur under the Proposed HCP Alternative would also take place under this Alternative, but at a much smaller scale. The implementation of required regulatory dust reduction measures would reduce the effects of fugitive dust on nearby receptors. As discussed above, the Proposed Action’s construction and operational emissions of criteria pollutants is anticipated to be within SJVAPCD yearly thresholds. Operation of the Proposed Action would have no air quality effects on nearby sensitive receptors.

4.3.5.3 Mitigation Measures

Mitigation measures MM 4.3-1 and MM 4.3-2 would be applied to reduce cumulative effects.

4.3.5.4 Cumulative Effect

The Proposed Action would result in contributions to cumulative effects in combination with other future projects developed within Kern County. It cannot be determined with certainty that other projects would not be proposed and developed that, when combined with the Proposed Action, would result in construction emissions that could be cumulatively considerable. Therefore, it can be assumed that cumulative effects would interfere with attainment of air quality standards. Construction emissions from these projects would be reduced by compliance with Rules 8021 and 9510, which are applicable to all projects, but some effects would remain.

4.3.6 Comparison of Alternatives

A summary of results comparing the No Action Alternative to the Proposed HCP Alternative and Reduced Permit Area Alternative is shown Table 4.3-3. Each of the potential effect areas which includes construction and operation emissions, exposure of sensitive receptors to substantial pollutant concentrations, and cumulative effect is measured with a less, more, or similar effect ranking as compared to the No Action Alternative.

Table 4.3-3
Comparison of Alternatives to the No Action Alternative

Potential Effect	No Action	Proposed HCP	Reduced Permit Area
Construction and Operation Emissions	-	More	More
Exposure of Sensitive Receptors to Substantial Pollutant Concentrations	-	More	More
Cumulative Effect	-	Similar	Similar

Source: Kern County, 2010.

As shown in Table 4.3-3, the Proposed HCP Alternative and the Reduced Permit Area Alternative would have more effects resulting from construction and operation emissions than

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the No Action Alternative. This is because under the No Action Alternative there would be no criteria air pollutants or GHG emissions emitted as the result of the Proposed Action not occurring. The Proposed HCP Alternative would have more of an effect than the Reduced Permit Area, however, because a greater disturbance of land would occur.

The same conclusion can be applied to exposure of sensitive receptors to substantial pollutant concentrations. Compared to the No Action Alternative, which would have less effect on exposing sensitive receptors to pollutants because there would be no project, the Proposed HCP Alternative and Reduced Permit Area Alternative both result in more effects (although the Reduced Permit Area Alternative would be less than the Proposed HCP Alternative).

Under the Proposed HCP Alternative, cumulative effects would occur that are unavoidable even with incorporation of mitigation measures MM 4.3-1 through MM 4.3-3. Cumulative effects would be less under the No Action Alternative because again there would be no solar project. However, air pollution and GHG emissions effects would be similar under both the Proposed HCP Alternative and the Reduced Permit Area Alternative, as predicting future projects throughout Kern County and the rest of the region, as well as determining the size of each project, would be impossible. For example, the Proposed HCP combined with a smaller project, could have the same cumulative effect as the Reduced Permit Area combined with a larger project.

The GHG effects from construction of the Proposed HCP Alternative would also be greater than those of the Reduced Area Alternative, but similar when compared to the No Action Alternative. However, under the Proposed HCP Alternative, the potential offset or displacement of GHGs from operation of the solar power generating facility, compared with traditional gas or coal-fired power plants, may help to meet federal and state goals for reducing GHG emissions.

4.4 BIOLOGICAL RESOURCES

4.4.1 Overview

The potential effects of the alternatives on biological resources within the Covered Lands are described below. The potential effects associated with each alternative are assessed relative to existing conditions when the Notice of Intent was issued (USFWS 2011). The analysis of biological resources focuses on the issues that arise within the Covered Lands. Cumulative effects to biological resources are discussed at the end of each project alternative description.

4.4.2 Methodology

The analysis contained within this EIS considers the results of several studies that were conducted within the Covered Lands, including a preliminary biological evaluation for the program-level-only parcels (Quad Knopf 2009), a biological assessment for the project-level parcels (Quad Knopf 2010a), a supplemental biological assessment for the implementation of transmission lines (Quad Knopf 2010b), a biological evaluation of the west solar complex (2010c), a wetland delineation of the project-level parcels (Quad Knopf 2010d), blunt-nosed leopard lizard and San Joaquin kit fox focused survey and small mammal trapping (Quad Knopf 2010e, 2012), and a conservation plan for the project level parcels (Quad Knopf 2010f).

This analysis considers potential effects to all biological resources in the study area and gives special consideration to the Covered Species. Potential effects to biological resources were determined by analyzing the changes to the existing setting and associated species distributions, particularly as they relate to habitat disturbance and compliance with the existing environmental regulatory framework.

4.4.3 No Action Alternative

This section summarizes the potential effects to biological resources associated with the No Action Alternative. Under this Alternative, an Incidental Take Permit would not be issued for take of the Covered Species and the Project would not occur. “Take” is defined broadly to mean harass, harm, hunt, shoot, wound, kill, trap, capture, or collect; or attempt to engage in any such conduct. “Harm” is defined as an act which actually kills or injures wildlife, including those activities that cause significant habitat modification or degradation resulting in the killing or injuring of wildlife by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering (50 CFR 17.3).

Under the No Action, the 5,784.3 acres identified as the Covered Lands would likely remain vacant or be periodically cultivated for agricultural production. The undeveloped setting of the sites would continue for an indefinite period, and no physical changes within the sites would

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occur beyond existing or historical conditions. The No Action Alternative would maintain the current agricultural land use designations of the parcels.

Agricultural activities in Covered Lands could include disking. Disking could reduce habitat quality as a result of vegetation removal and soil compaction (Rathbun et al. 1997).

4.4.3.1 Effects to Wetlands and Waters of the U.S.

Solar Site Activities

Under this alternative, the Solar Sites encompassing 3,798.3 acres would not be developed. Disking of the sites would continue to occur under this alternative and cause adverse effects to Wetlands or Waters of the U.S.

Conservation Site Activities

Under this alternative, the 1,894.4 acres identified as Conservation Sites would not be permanently conserved; thus, there would be no conservation benefit to Wetlands or Waters of the U.S. as a result of the Project.

4.4.3.2 Effects to Species

Solar Site Development Activities

Under this alternative, the Solar Sites encompassing 3,798.3 acres would not be developed. There would continue to be adverse effects to Covered Species because disking of the sites would continue to degrade the habitat and the solar sites would not be conserved and managed in perpetuity (upon decommissioning) for the benefit of Covered Species.

Conservation Site Activities

Under this alternative, the 1,894.4 acres identified as Conservation Sites would not be permanently conserved and the proposed Conservation Management Plan would not be implemented as mitigation; thus, there would be no conservation benefit to Covered Species or other sensitive species as a result of the Project.

4.4.3.3 Mitigation Measures

There are no mitigation measures imposed under the No Action Alternative.

4.4.3.4 Cumulative Effects

The analysis of cumulative effects to biological resources in the general vicinity of the Permit Area consists mainly of proposed Solar Project developments, agricultural developments, and livestock operations within six miles of the Permit Area. As of September 2013, projects within

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6 miles of the Permit Area included four solar projects, nineteen agricultural and livestock related projects, two cell tower projects, a proposed community center project, a reclamation plan for the Bureau of Reclamation, and numerous zoning and general plan updates (Kern County Planning and Community Development Department). Not including the Maricopa Sun Solar Complex, solar projects accounted for a total of 695 acres, agricultural and livestock projects for 5,829.85 acres, general plan updates and zoning changes to residential, estate, commercial, or industrial designations, for 76.62 acres, cell towers for 48.05 acres, a reclamation project for 600 acres, a community center project for 10.5 acres, and other projects for 3.65 acres. The total acreage of projects within 6 miles of the Permit Area is approximately 7,264 acres.

For the No Action Alternative, cumulative adverse effects may result from continued disking of the Covered Lands. Such effects will include the continued loss, fragmentation, and degradation of potential habitat, which could prevent Covered Species from inhabiting or foraging within the Permit Area. Combined with all of the proposed, pending, and recently approved projects within 6 miles of the project site, the No Action Alternative may adversely affect approximately 13,048 acres (maximum effects). The No Action Alternative's incremental contribution to the degradation and/or fragmentation of the existing habitat in Kern County would be cumulatively considerable, amounting to approximately 0.25% of the area of Kern County.

Whether or not the combined effects of the No Action Alternative, in conjunction with reasonably foreseeable actions associated with other projects, would result in cumulative adverse effects is primarily dependent on project-specific conservation measures, BMPs, adaptive management strategies, and individual development project reviews and requirements imposed by other Federal, local, and state authorities.

4.4.4. Proposed HCP Alternative

This section summarizes the potential effects to biological resources associated with the Proposed HCP Alternative. Under this Alternative, an Incidental Take Permit would be issued for take of the Covered Species and the Project would occur. Activities included in the Proposed HCP Alternative are identified as Covered Activities and allow for: 1) Construction and operation activities within Solar Sites; 2) Management and maintenance activities within Movement Corridors; 3) Management activities within the areas designated for conservation (Conservation Sites) including monitoring and reporting actions; and 4) Activities associated with implementation of a conservation program.

Under the Proposed HCP Alternative, photovoltaic (PV) power-generating facilities producing up to 700 MW of electricity would be constructed and operated on the Covered Lands. The Covered Lands are comprised of Solar Sites which encompass 3,798.3 acres. The Covered Lands are also comprised of Conservation Sites which encompass 1,894.4 acres. The

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Conservation Sites will be permanently conserved, and an associated Conservation Management Plan will be implemented. This will result in conservation benefits to the Covered Species as well as to other sensitive species. The Proposed HCP Alternative includes all actions that are necessary to construct, operate and maintain, and decommission the solar generating facilities, as well as those necessary to manage habitat and conserve biological species.

The Proposed HCP Alternative will cover all activities within the Covered Lands for a period of 35 years that are related to the construction, operation and maintenance of the Solar Complex and its facilities, and to the implementation of the conservation program. Construction of solar facilities on all Solar Sites is anticipated to be completed over an 8 to 10-year period from the commencement of the initial development. However, unknown constraints could extend the development phase to a 10 to 15-year period.

4.4.4.1 Effects to Wetlands and Waters of the U.S.

Solar Site Development Activities

Wetlands that are present on the Solar Sites include one freshwater emergent wetland that has been disked (located within Site 2-S). One ponding basin occurs adjacent to the south side of Site 7-S, but this basin is outside of the Covered Lands. Non-wetland features that are present include a tributary, two unlined canals, and one “other water”.

Neither the fresh emergent wetland nor the ponding basin will be negatively affected by the Project. Exclusion barrier fencing will be established between these features and the work area to eliminate the potential for any adverse affects to them. The freshwater emergent wetland will be enhanced by cessation of disking.

Conservation Site Activities

No wetlands were identified within the Conservation Sites. There is one tributary and one intermittent drain on one of Site 17-C though. These drainages are collectively a substantial feature that are considered Waters of the U.S. because they establish connectivity with a navigable water to the south. However, this feature is located on a Conservation Site, and will not be affected.

4.4.4.2 Effects to Species

There are 20 special-status plant species (Table 3.4-7) known to occur within 5 miles of the Permit Area. Covered Lands do not currently support populations of special-status plant species due to recurring disking on the land and lack of suitable habitat. With the cessation of disking, special-status plant species could potentially establish populations within the Permit Area. If special-status plants do become present, impacts could potentially occur as a result of project activities; however, neither the potential occupation of plants nor the potential impacts to plants

can be predicted. Biological surveys and vegetation management outlined in the HCP (Chapter 5) would provide regular data that will identify the occurrence of special-status plant species. Potential impacts to special-status plants would then be evaluated on a case-by-case basis in consultation with the Service. Maricopa Sun LLC may seek to amend the permit to include non-covered special-status plants.

There are 12 special-status wildlife species reported in the vicinity of the Covered Lands. These include two reptiles, five birds, and five mammals (Table 3.4-8). There is little or no potential for occurrence of most of these species within the Covered Lands because there is currently little or no habitat available for them. However, the five Covered Species and migratory birds could potentially be affected by the Project. These effects are detailed below.

Solar Site Development Activities

Under this alternative, the Solar Sites encompassing 3,798.3 acres would be developed. Development activities have the potential to take Covered Species through harm and harassment through the loss of potential habitat.

Take could occur during all phases of the project on these sites: pre-construction, construction, operations and maintenance, and decommissioning. The potential for take to occur depends on the project phase and the presence of Covered Species during that phase. Some activities are limited to specific phases (e.g., drilling to characterize soil conditions during pre-construction), while other activities could occur throughout the project life (e.g., vehicle use).

No Covered Species are known to occur on the Solar Sites, but all Covered Species may become more abundant during the operations and maintenance phase as a result of improved habitat. San Joaquin Kit Fox is expected to become more abundant as a result of “improved habitat”. Cessation of disking is the main reason for this improved habitat, and is mentioned above. Giant kangaroo rat (*Dipodomys ingens*) and Nelson’s antelope squirrel have been documented moving onto solar sites with suitable habitat conditions after construction was completed (Howard Clark and Curtis Uptain, August 2, 2013).

Potential indirect effects to Covered Species could result over time due to the paving of roads and building areas and construction of drainages along roads and other paved areas, which could change soil moisture and chemistry in localized areas. Changes in soil moisture and chemistry could result in changes in plant distributions and species composition that could change the local plant community that Covered Species rely upon. This indirect effect would occur during the O&M phase on the Solar Sites and throughout the conservation lands once disking ceases and enhancement management has begun. Soil moisture could affect vegetation in a beneficial way (cessation of disking and additional water would support more vegetation), or in an adverse way

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(additional water may encourage non-native “weedy” plants or a vegetation density greater than that preferred by Covered Species).

SAN JOAQUIN KIT FOX

During the pre-construction and construction phases of each solar facility development, the Solar Sites will be fenced with perimeter security fencing. Fencing the Solar Sites is identified as a direct effect to San Joaquin kit foxes because of the potential to harm the species by restricting access to dispersal and foraging habitat. Build-out of all Solar Sites will be phased over a 10-15 year period at which time all 3,798.3 acres of the Solar Sites will be fenced. All Solar Sites will be fenced with wildlife permeable fencing. Take of dispersal and foraging habitat could result in take by limiting the species ability to move through the habitat in search of food, shelter, or reproductive opportunities for 35 years.

In addition to fencing the Solar Sites, other Covered Activities have the potential to take San Joaquin kit fox. Mortality will be avoided and minimized to the extent possible. Some Covered Activities will involve ground disturbance using heavy equipment that will generate ground vibrations and noise, and some Covered Activities will also generate high vehicle traffic levels which may result in vehicle strikes. Hazardous and non-hazardous waste materials can be generated any time construction crews are present, introducing the potential for take of San Joaquin kit fox. Covered Activities with the potential to harm and harass San Joaquin kit fox include: clearing, grading, leveling, and compacting the Solar Development Footprint; geotechnical drilling and testing; establishing staging areas and access roads; delivery and distribution of building materials and equipment; drainage and erosion control; testing, plugging, and abandoning oil wells; construction of O&M buildings and solar arrays; use of helicopters; construction of transmission lines; paving of access roads and driveways; cleaning of the solar arrays during the O&M phase; removal of all solar arrays, O&M buildings, staging areas, and access roads during the decommissioning phase; mowing for vegetation/weed control; and carrying out the enhancement measures on the conservation lands.

Occupation of these lands is not predictable, though, and if the San Joaquin kit fox does become established on the Covered Lands after decommissioning, it would represent a benefit to the local population. Furthermore, implementation of the Proposed HCP Alternative will, upon decommissioning, enhance habitat and conserve land in perpetuity for the benefit of San Joaquin kit fox.

TIPTON KANGAROO RAT

During the pre-construction phase for each solar facility development, the Solar Development Footprints will be graded and compacted to prepare the land for construction. Land grading and compacting will eliminate 3,798.3 acres of potential habitat for Tipton kangaroo rats. Complete

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build-out of the Maricopa Sun Solar Complex will be phased over 10-15 years and take of Tipton kangaroo rat potential habitat will be concurrent with the development of each solar facility. Take of potential foraging and burrowing habitat could lead to take of the Tipton kangaroo rat by limiting the species ability to feed, breed, and shelter..

In addition to grading and compacting, other Covered Activities are ground disturbing and include the use of heavy equipment that will generate ground vibrations and high noise levels. Ground disturbing activities could result in take of Tipton kangaroo rats in the form of harm and harassment. Covered Activities with the potential to harm and harass Tipton kangaroo rats include: geotechnical drilling and testing; establishing staging areas and access roads; delivery and distribution of building materials and equipment; drainage and erosion control; testing, plugging, and abandoning oil wells; construction of O&M buildings and solar arrays; use of helicopter; construction of transmission lines; paving of access roads and driveways; cleaning of the solar arrays during the O&M phase; removal of all solar arrays, O&M buildings, staging areas, and access roads during the decommissioning phase; mowing for vegetation/weed control; and carrying out the enhancement measures on conservation lands.

The potential for take as a result of high noise levels exist in areas where Tipton kangaroo rats are known to have burrows along the boundaries of Solar Sites 2-S and 3-S. Tipton kangaroo rats will also use artificial burrow-like structures such as culverts, pipes, pallets, and wire bales that will be staged throughout the Solar Development Footprints, and the species could be exposed to take in the event that materials are moved or buried while occupied. Delivery of materials and equipment will generate high vehicle traffic levels and hazardous and non-hazardous waste materials can be generated any time construction crews are present.

As part of the conservation strategy, Maricopa Sun LLC has developed a relocation program that will trap Tipton kangaroo rats that may be found on site as a result of survey efforts. The purpose of this relocation plan is two-fold: 1) to ensure that standard avoidance and minimization measures will be implemented to avoid and reduce the impact of the Project to the Tipton kangaroo rat and Nelson's antelope squirrel; and 2) to establish standard guidelines for the trapping and relocation of the Tipton kangaroo rat and Nelson's antelope squirrel, should it become necessary (Appendix F of Draft HCP, Appendix B).

Occupation of these lands is not predictable, though, and if Tipton kangaroo rat do become established it would represent a benefit to the local population. Furthermore, implementation of the Proposed HCP Alternative will, upon decommissioning after 35 years, enhance habitat and conserve land in perpetuity for the benefit of Tipton kangaroo rat.

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NELSON'S ANTELOPE SQUIRREL

During the pre-construction phase for each solar facility development, the Solar Development Footprints will be graded and compacted to prepare the land for construction. Land grading and compacting will eliminate 3,798.3 acres of potential habitat for Nelson's antelope squirrel. Complete build-out of the Maricopa Sun Solar Complex will be phased over 10-15 years and take of Nelson's antelope squirrel potential habitat will be concurrent with the development of each solar facility. Take of potential foraging habitat could lead to harm of the Nelson's antelope squirrel by limiting the species ability to feed, breed, and shelter.

In addition to grading and compacting, other Covered Activities are ground disturbing and include the use of heavy equipment that will generate ground vibrations and high noise levels. Ground disturbing activities could result in take of Nelson's antelope squirrel in the form of harm and harassment. Covered Activities with the potential to harm and harass Nelson's antelope squirrel include: geotechnical drilling and testing; establishing staging areas and access roads; delivery and distribution of building materials and equipment; drainage and erosion control; testing, plugging, and abandoning oil wells; construction of O&M buildings and solar arrays; construction of transmission lines; paving of access roads and driveways; cleaning of the solar arrays during the O&M phase; removal of all solar arrays, O&M buildings, staging areas, and access roads during the decommissioning phase; mowing for vegetation/weed control; and carrying out the enhancement measures on conservation lands.

The potential for take as a result of high noise levels is not anticipated to occur due to the lack of presence of the species within 0.5 mile of any solar development. If the species become present closer to or within the Solar Sites over the life of the Project, adverse effects could occur in areas where Nelson's antelope squirrel has become present. The risk of take of Nelson's antelope squirrel due to noise will be commensurate with the species level of occurrence on or adjacent to the Solar Development Footprint. Nelson's antelope squirrel will use artificial burrow-like structures such as culverts, pipes, pallets, wire bales, and construction equipment that will be staged throughout the Solar Development Footprints and the species could be exposed to take in the event that materials and equipment are moved or buried while occupied. Delivery of materials and equipment will generate high vehicle traffic levels and hazardous and non-hazardous waste materials can be generated any time construction crews are present. Nelson's antelope squirrel are active during the day and consequently will be exposed to peak activity hours.

Occupation of these lands is not predictable, though, and if the Nelson's antelope squirrel does become established it would represent a benefit to the local population. Furthermore, implementation of the Proposed HCP Alternative will, upon decommissioning after 35 years, enhance habitat and conserve land in perpetuity for the benefit of Nelson's antelope squirrel.

WESTERN BURROWING OWL

During the pre-construction phase for each solar facility development, the Solar Development Footprints will be graded and compacted to prepare the land for construction. Land grading and compacting will eliminate 3,798.3 acres of potential foraging habitat for western burrowing owls. Complete build-out of the Maricopa Sun Solar Complex will be phased over 10-15 years and take of western burrowing owl potential foraging habitat will be concurrent with the development of each solar facility. Take of potential foraging habitat could lead to harm of the western burrowing owl by limiting the species ability to obtain food.

In addition to grading and compacting, other Covered Activities are ground disturbing and include the use of heavy equipment that will generate ground vibrations and high noise levels. Ground disturbing activities could result in take of western burrowing owl in the form of harm and harassment. Covered Activities with the potential to harm and harass western burrowing owls include: geotechnical drilling and testing; establishing staging areas and access roads; delivery and distribution of building materials and equipment; drainage and erosion control; testing, plugging, and abandoning oil wells; construction of O&M buildings and solar arrays; construction of transmission lines; paving of access roads and driveways; cleaning of the solar arrays during the O&M phase; removal of all solar arrays, O&M buildings, staging areas, and access roads during the decommissioning phase; mowing for vegetation/weed control; and carrying out enhancement measures on the conservation lands.

Western burrowing owls may seek shelter in artificial burrow-like structures such as culverts, pipes, pallets, wire bales, and construction equipment that will be staged throughout the Solar Development Footprints and the species could be exposed to take in the event that materials or equipment are moved or buried while occupied. Delivery of materials and equipment will generate high vehicle traffic levels and hazardous and non-hazardous waste materials can be generated any time construction crews are present. Western burrowing owls are active during the day and consequently will be exposed to peak activity hours.

Occupation of these lands is not predictable, though, and if western burrowing owls do become established it would represent a benefit to the local population. Furthermore, implementation of the Proposed HCP Alternative will, upon decommissioning after 35 years, enhance habitat and conserve land in perpetuity for the benefit of western burrowing owl.

BLUNT-NOSED LEOPARD LIZARD

During the pre-construction phase for each solar facility development, the Solar Development Footprints will be graded and compacted to prepare the land for construction. Land grading and compacting will eliminate 3,798.3 acres of potential foraging habitat for blunt-nosed leopard lizard. Complete build-out of the Maricopa Sun Solar Complex will be phased over 10-15 years

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and take of blunt-nosed leopard lizard potential foraging habitat will be concurrent with the development of each solar facility. Site grading and compaction and barrier fencing could result in take of potential foraging habitat and could lead to harm of the blunt-nosed leopard lizard by limiting the species ability to obtain food.

In addition to grading and compacting, other Covered Activities are ground disturbing and include the use of heavy equipment that will generate ground vibrations and high noise levels. Ground-disturbing activities could result in take of blunt-nosed leopard lizard in the form of harm and harassment. Covered Activities with the potential to harm and harass blunt-nosed leopard lizard include: geotechnical drilling and testing; establishing staging areas and access roads; delivery and distribution of building materials and equipment; drainage and erosion control; testing, plugging, and abandoning oil wells; construction of O&M buildings and solar arrays; construction of transmission lines; paving of access roads and driveways; cleaning of the solar arrays during the O&M phase; removal of all solar arrays, O&M buildings, staging areas, and access roads during the decommissioning phase; mowing for vegetation/weed control; and carrying out the enhancement measures on conservation lands.

Blunt-nosed leopard lizard will use artificial burrow-like structures such as culverts, pipes, pallets, wire bales, and construction equipment that will be staged throughout the Solar Development Footprints and the species could be exposed to take in the event that materials and equipment are moved or buried while occupied. Delivery of materials and equipment will generate high vehicle traffic levels and hazardous and non-hazardous waste materials can be generated any time construction crews are present. Blunt-nosed leopard lizards are active during the day and consequently will be exposed to peak activity hours.

The blunt-nosed leopard lizard does not currently occur on the Solar Sites and no burrows or other sign were detected on the Solar Sites. However, the species was observed on lands between Solar Sites 2-S and 3-S. Barrier fencing and other protective measures are incorporated into the project to assure that that blunt-nosed leopard lizards occurring in these adjacent areas will not be subject to direct mortality. The temporary exclusion of the blunt-nosed leopard lizards from these areas will not substantially affect the local population of the blunt-nosed leopard lizard.

Occupation of these lands is not predictable, though, and if blunt-nosed leopard lizard do become established it would represent a benefit to the local population. Furthermore, implementation of the Proposed HCP Alternative will, upon decommissioning after 35 years, enhance habitat and conserve land in perpetuity for the benefit of blunt-nosed leopard lizard.

MIGRATORY BIRDS

Various species of migratory birds, which are protected by the Migratory Bird Treaty Act and various provisions of the California Fish and Game Code, may occur on the Solar Sites. Both passerines and raptors could potentially nest on the ground or within the riparian shrub or tree layers. Ground disturbance activities could potentially cause abandonment of active nests.

Limited anecdotal evidence suggests that large expanses of solar panels may contribute to migratory bird deaths. It is believed that reflections from panels may attract birds in flight that mistake the broad reflective surfaces for water bodies. No research data are available at this time, though, that specifically elucidate to what extent solar panels contribute to bird mortality via solar panel collisions. Because the incidence of bird strikes of photovoltaic panels is still being studied, no reliable methods or actions have been identified that would avoid or minimize these occurrences. Building collisions and feral cats are believed to be the greatest causes of migratory bird deaths, presently.

Conservation Site Activities

Under this alternative, the 1,894.4 acres identified as Conservation Sites would be permanently conserved and the proposed Conservation Management Plan would be implemented as mitigation. There would therefore be a conservation benefit to Covered Species and other sensitive species as a result of the Project. Nonetheless, implementing the conservation program and conducting research to determine the success of the conservation program have the potential to affect Covered Species and migratory birds. Effects to Covered Species and migratory birds are outlined below:

SAN JOAQUIN KIT FOX

The six Conservation Sites encompassing 1,894.4 acres will be placed into a permanent Conservation Easement and managed in perpetuity for the benefit of the San Joaquin kit fox. The San Joaquin kit fox is not likely to be adversely affected by management activities on these sites. This species is most active during the evening and night time hours, and will be protected from conservation program activities by restricting activities to day time hours. Minimal potential for take of the San Joaquin kit fox is associated with implementing some activities in the conservation program, though.

TIPTON KANGAROO RAT

The six Conservation Sites encompassing 1,894.4 acres will be placed into a permanent Conservation Easement and managed in perpetuity for the benefit of the Tipton kangaroo rat. The Tipton kangaroo rat is not likely to be adversely affected by management activities on these sites. This species is most active during the evening and night time hours, and will be protected

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from conservation program activities by restricting activities to day time hours. Some potential for take of the Tipton kangaroo rat is associated with implementing certain activities in the conservation program, described above. The Tipton kangaroo rat could be exposed to take during agency approved relocation of individuals in cases where burrows cannot be avoided by Covered Activities.

NELSON'S ANTELOPE SQUIRREL

The six Conservation Sites encompassing 1,894.4 acres will be placed into a permanent Conservation Easement and managed in perpetuity for the benefit of the Nelson's antelope squirrel. The Nelson's antelope squirrel will generally not be adversely affected by management activities on these sites, but some take could occur. Potential for take of the Nelson's antelope squirrel is associated with implementing certain activities in the conservation program. The Nelson's antelope squirrel could be exposed to take during agency approved relocation of individuals in cases where burrows cannot be avoided by Covered Activities.

WESTERN BURROWING OWL

The six Conservation Sites encompassing 1,894.4 acres will be placed into a permanent Conservation Easement and managed in perpetuity for the benefit of the western burrowing owl. The western burrowing owl will generally not be adversely affected by management activities on these sites, but some take could occur. Some potential for the take of western burrowing owl is associated with implementing certain activities in the conservation program. The western burrowing owl could be exposed to take during agency approved relocation of individuals in cases where burrows cannot be avoided by Covered Activities.

BLUNT-NOSED LEOPARD LIZARD

The six Conservation Sites encompassing 1,894.4 acres will be placed into a permanent Conservation Easement and managed in perpetuity for the benefit of the blunt-nosed leopard lizard. The blunt-nosed leopard lizard is not likely to not be adversely affected (i.e., no "take") by management activities on these sites.

MIGRATORY BIRDS

Various species of migratory birds, which are protected by the Migratory Bird Treaty Act and various provisions of the California Fish and Game Code, may occur on the Conservation Sites. Both passerines and raptors could potentially nest on the ground or within the riparian shrub or tree layers. Installation of artificial burrows and T-post perches, as well as ground contouring for topographic relief, could potentially cause abandonment of active nests.

4.4.4.3 Mitigation Measures

The Avoidance and Minimization Measures listed in Section 2.3.3 of this EIS for the Proposed HCP Alternative are applicable to this Alternative. Additional mitigation measures, not included in Section 2.3.3, are listed below:

MM 4.4-1: Exclusion barrier fencing will be established between wetlands and Waters of the U.S. and the work area within Covered Lands to eliminate the potential for any adverse affects to these features.

MM 4.4-2: Prior to development within Covered Lands the project proponent shall be required to conduct and submit to the Kern County Planning and Community Development Department appropriate protocol level biological surveys for special-status plant and animal species.

MM 4.4-3: A qualified biologist shall be on site during vegetation removal and grading activities when those activities take place within 200 feet of sensitive habitats or species. Once those ground clearing activities have been accomplished, full-time monitoring shall no longer be required, but weekly inspections shall be conducted throughout the construction period to insure that mitigation measures for biological effects are being adequately implemented.

4.4.4.4 Cumulative Effects

As mentioned in Section 4.4.4.3, the analysis of cumulative effects to biological resources in the general vicinity of the Permit Area consists mainly of proposed Solar Project developments, agricultural, and livestock developments within six miles of the Permit Area. These projects, not including the Proposed HCP Alternative, totaled approximately 7,263.67 acres.

Cumulative effects may result from increased development in the region and changes in land use. Such effects may include habitat loss, ground disturbance, noise, and ecological traps (e.g. waterfowl flight path collisions with solar panels mistaken for water sources due to solar panel reflections). Although this analysis anticipates that other proposed, pending, and recently approved projects will have cumulative adverse effects to 7,263.67 acres (maximum effects), the Proposed HCP Alternative will have a beneficial effects to Covered Species by conserving 1,894.4 acres at the beginning of the project and decommissioning 3,798.3 acres after 35 years for a total of 5,784.3 acres (including existing public easements, setbacks, and Movement Corridors) of land and habitat in perpetuity. Instead of contributing to the loss of existing wildlife habitat in Kern County, the Proposed HCP Alternative will enhance and conserve wildlife habitat. Of the 13,048 acres that are proposed for development within 6 miles of the Permit Area, the Proposed HCP Alternative will benefit approximately 0.11% of the area of Kern County over a 35-year period. The remaining projects within 6 miles of the Permit Area, which may have cumulative adverse effects, will encompass approximately 0.14% of the area of Kern County.

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Cumulative effects on vegetation, wetlands, and waters of the U.S. would not be adverse because the cessation of disking would give vegetation the opportunity to become established between and under solar panels and would contribute to the recovery of a wetland in the Permit Area that is currently disked. Potential adverse effects to the wetland, once it recovers through natural successional processes, will be avoided because of minimization and avoidance measures implemented to protect the wetland and its hydrology (GM-3 of Draft HCP, Section 2.3.5). Furthermore, the cessation of disking could provide improved foraging and burrowing habitat, which would benefit small mammals and the predators that feed on them (Germano et al. 2012, ESRP 2006).

It is possible that some residual effects to wildlife, including Covered Species, would occur from implementation of the Proposed HCP Alternative. Avoidance and minimization measures included in the description of the Proposed HCP Alternative (see Section 2.3.5) would avoid or minimize project effects with the help of adaptive management strategies that result from biological surveys and analyses.

Whether or not the combined effects of the Proposed HCP Alternative, in conjunction with reasonably foreseeable actions associated with other projects, would result in cumulative effects is primarily dependent on project-specific conservation measures, BMPs, adaptive management strategies, and individual development project reviews and requirements imposed by other Federal, local, and state authorities. It is not feasible to study whether other projects will contribute to the recovery of wetlands and waters of the U.S. or benefit Covered Species. However, given that the Proposed HCP Alternative may contribute to the recovery of a wetland and may benefit Covered Species, no adverse cumulative effects are anticipated from this Alternative.

4.4.5 Reduced Permit Area Alternative

This section summarizes the potential effects to biological resources associated with the Reduced Permit Area HCP Alternative. Under this Alternative, an Incidental Take Permit would still be issued for take of the Covered Species and the Project would occur. Activities included in the Proposed HCP Alternative are identified as Covered Activities and allow for: 1) Construction and operation activities within Solar Sites; 2) Management and maintenance activities within Movement Corridors; 3) Management activities within the areas designated for conservation (Conservation Sites) including monitoring and reporting actions; and 4) Activities associated with implementation of a conservation program.

Under the Reduced Permit Area HCP Alternative, the Covered Lands would be reduced from 5,784.3 acres to 3,682 acres by removing the following sites from the Project: Sites 4-S/4-M (652.5 acres), 6-S/6-M (320.9 acres), 7-S/7-M (481.2 acres) and 17-C (647.7 acres) for a total reduction of approximately 2,102.3 acres. The lands excluded from the Covered Lands would

likely remain vacant and would continue to be disked on a regular basis for weed control. If water became available, these lands would likely be converted to active agricultural production.

Under the Reduced Permit Area HCP Alternative, photovoltaic power-generating facilities producing up to 700 MW of electricity would be constructed and operated on the Covered Lands. The Covered Lands would be comprised of Solar Sites and Movement Corridors encompassing 2329.7 acres. The Covered Lands would be comprised of Conservation Sites encompassing 1352.3 acres. The Conservation Sites would be permanently conserved, and an associated Conservation Management Plan would be implemented. This would result in conservation benefits to the Covered Species as well as to other sensitive species. The Reduced Permit Area HCP Alternative includes all actions that are necessary to construct, operate and maintain, and decommission the solar generating facilities, as well as those necessary to manage habitat and conserve biological species.

The Reduced Permit Area HCP Alternative would cover all activities within the Covered Lands for a period of 35 years that are related to the construction, operation and maintenance of the Solar Complex and its facilities, and to the implementation of the conservation program. Construction of solar facilities on all Solar Sites is anticipated to be completed over a 5 to 7-year period from the commencement of the initial development. However, unknown constraints could extend the development phase to a 10 to 12-year period.

4.4.5.1 Effects to Wetlands and Waters of the U.S.

Solar Site Activities

Wetlands that are present on the Solar Sites include one freshwater emergent wetland that has been disked (located within Site 2-S). One ponding basin occurs adjacent to the south side of Site 7-S, but this basin is outside of the Covered Lands. Non-wetland features that are present include a tributary, two unlined canals, and one “other water”.

Neither the fresh emergent wetland nor the ponding basin will be negatively affected by the Project. Exclusion barrier fencing will be established between these features and the work area to eliminate the potential for any adverse affects to them. The freshwater emergent wetland will be enhanced by cessation of disking.

Conservation Site Activities

Under this alternative, site 17-C, which includes drainages that are collectively considered Waters of the U.S. because they establish connectivity with a navigable water to the south, would be removed from the Conservation Sites. Not including site 17-C in the project would result in these drainage features not being conserved and managed in perpetuity.

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4.4.5.2 Effects to Species

Solar Site Activities

Under this alternative, the Solar Sites encompassing 2,350.1 acres would be developed. These development activities may result in take of Covered Species and migratory birds. Direct and indirect effects could occur when Covered Activities substantially alter the ground surface or subsurface of the Covered Lands and disturb habitat. These adverse effects described previously in Section 4.4.4.2 are applicable to the Reduced Permit Area Alternative.

Additionally, adverse effects to Covered Species described in section 4.4.4.2 are applicable to the Reduced Permit Area Alternative.

Conservation Site Activities

Under this alternative, the 1352.3 acres identified as Conservation Sites would be permanently conserved and the proposed Conservation Management Plan would be implemented as mitigation. There would therefore be a conservation benefit to Covered Species and other sensitive species as a result of the Project. Nonetheless, implementing the conservation program and conducting research (See Section 6 of the Draft HCP) to determine the success of the conservation program have the potential to affect Covered Species. Adverse effects to Covered Species and migratory birds described in section 4.4.4.2 are applicable to the Reduced Permit Area Alternative.

4.4.5.3 Mitigation Measures

The Avoidance and Minimization Measures listed in Section 2.3.3 of this EIS for the Proposed HCP Alternative are applicable to this Alternative. Additionally, mitigation measures listed in Section 4.4.4.3 of this EIS for the Proposed HCP Alternative are applicable to this Alternative.

4.4.5.4 Cumulative Effects

The analysis of cumulative effects listed in Section 4.4.4.4 of this EIS for the Proposed HCP Alternative is applicable to this Alternative. With the reduced acreage under this Alternative, the benefit to species and conservation of land is also reduced. Of the 10,652.07 acres that are proposed for development, the Reduced Permit Area Alternative will benefit approximately 0.7% of the area of Kern County after 35 years. The remaining projects within 6 miles of the Permit Area, which may have cumulative adverse effects, will encompass approximately 0.14% of the area of Kern County.

4.4.6 Comparison of Alternatives

The NEPA effect determinations are identified by alternative at the project level. Regional cumulative effects are also considered.

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A summary of results comparing the No Action Alternative to the Proposed HCP Alternative and Reduced Permit Area Alternative is shown in Table 4.4-1. Each of the potential effect areas, which includes solar site development activities, conservation site activities, cumulative effects, and benefits to Covered Species is measured with a less, more, or similar effect ranking as compared to the No Action Alternative.

Table 4.4-1
Comparison of Alternatives to the No Action Alternative

Potential Effect	No Action	Proposed HCP	Reduced Permit Area
Solar Site Development Activities	-	Less	Less
Conservation Site Activities	-	Less	Less
Cumulative Effects	-	Less	Less
Benefits to Covered Species	-	More	More

Source: Kern County, 2010

The Proposed HCP Alternative will result in 1894.4 acres of conservation lands, the Reduced Permit Alternative will result in 1,246.7 acres of conservation lands, and the No Action Alternative will result in no conservation land acreage.

Under the No Action Alternative, the 5,784.3 acres identified as the Covered Lands would likely remain vacant or be periodically cultivated for agricultural production. The undeveloped setting of the sites would continue for an indefinite period, and no physical changes within the sites would occur beyond existing or historical conditions. The No Action Alternative would adversely affect Covered Species. The Conservation Sites, Movement Corridors, and Solar Sites (upon decommissioning) would also not be conserved in perpetuity for the Covered Species.

The No Action Alternative would adversely affect Covered Species during the life of the project than either the Proposed HCP Alternative or the Reduced Permit Area HCP Alternative because of the No Action Alternative's lack of conservation and habitat enhancement, and continuation of agricultural activities such as disking. The Reduced Permit Area HCP Alternative would adversely affect Covered Species on Solar Sites only slightly more than the Proposed HCP Alternative due to a reduction in size of land conserved and habitat enhanced.

Regional cumulative effects to Covered Species would be greater under the No Action Alternative than under either the Proposed HCP Alternative or the Reduced Permit Area HCP Alternative because the No Action Alternative may not provide benefits to Covered Species, and may only adversely affect Covered Species. However, while the Proposed HCP Alternative and the Reduced Permit Area HCP Alternative also adversely affecting Covered Species, they, unlike the No Action Alternative, may provide a long-term benefit to Covered Species through conservation and habitat enhancement. Given the reduction in size of the Reduced Permit Area

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HCP Alternative, it will have a slightly larger cumulative effect than the Proposed HCP Alternative because it will conserve and enhance less land than the Proposed HCP Alternative.

With Avoidance and Minimization Measures included in the description of the Proposed HCP Alternative (see Section 2.3.3), there may be a greater net conservation benefit to Covered Species under the Proposed HCP Alternative than under the Reduced Permit Area Alternative. The Proposed HCP Alternative will incorporate 5,784.3 acres into a conservation easement to be conserved and managed in perpetuity for the Covered Species. The Reduced Permit Area HCP Alternative would only incorporate 3,682 acres into a conservation easement. Thus, approximately 60% more habitat will ultimately be conserved for Covered Species under the Proposed HCP Alternative. The No Action Alternative would have little conservation benefit for the Covered Species because the disking would be allowed to continue on the Covered Lands. This would maintain the degraded habitat that is present, precluding Covered Species from occurring as is generally the case now. The Proposed HCP Alternative is the preferred alternative.

4.5 CULTURAL RESOURCES

4.5.1 Overview

The potential effects of the alternatives on cultural resources within the Covered Lands are described below. The potential effects associated with each alternative are assessed relative to existing conditions when the Notice of Intent was issued. The analysis of cultural resources focuses on the issues that arise within the Covered Lands. Because effects to cultural resources are specific to the location, the effects do not cumulate with effects on other projects to create more or greater cumulative effects.

Cultural resources surveys were conducted in 2010 throughout those areas of the original Covered Lands sites most likely to contain prehistoric or historic artifacts or sites. Due to the historic use of the parcels for agricultural activities, the surface had been substantially altered. It is unknown whether sub-surface artifacts could exist, and whether artifacts and other materials have been incorporated into the soils from disking and grading. Fourteen cultural resources were identified during those surveys. In addition to the historic artifacts and sites identified, seven prehistoric shell scatters and one isolated prehistoric artifact were identified during the field surveys. Based on surface observations, it was determined that the shell remains were widely dispersed by agricultural activities at each site. Because of this, they lack the potential to yield information important in history or prehistory. One fragment of a chert biface was located within the Covered Lands, which could not be dated, and does not qualify as a historical resource. A records search also identified 17 previously recorded cultural resources within 0.5 miles of the original Project site; however, none of these were within the Covered Lands.

4.5.2 Methodology

Existing records, files, and maps located at the Southern San Joaquin Valley Information Center (SSJVIC) of the California Historical Resources Information System were examined in 2010 to identify previously recorded cultural resources within 0.5 miles of the Covered Lands. Other sources reviewed at that time included the SSJVIC site and study base maps. In August 2012, the National Register of Historic Places, Office of Historic Preservation Computer Listing, California Historic Resources Inventory, California Historical Landmarks, and California Points of Historical Interest computer listings were reviewed.

Field surveys were conducted from March 2 through March 21, 2010 on selected areas within the original 6,046 acre-site in preparation for the Maricopa Sun Solar Complex Project EIR (Kern County 2010). Survey area locations were chosen based on locations that held the highest probability for archaeological sites based on elevation, water availability, proximity to prehistoric lacustrine and marshland environments, historic transportation, and industrial facilities. Follow-up field investigations were conducted in June 2010, and included additional

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sites within the Covered Lands. The pedestrian surveys were conducted utilizing 15-and 20-meter-wide transects, with width varying depending on vegetative cover and density.

In accordance with Senate Bill 18 and the California Tribal Consultation guidelines, appropriate Native American groups were consulted in regard to the Project's potential effects on Native American features, objects and places of significance. In addition to contacting local Native American Tribes before beginning the 2010 Draft EIR (during the Notice of Preparation period which began in March 2010), tribes were notified of the completion of the Draft EIR with another opportunity to comment. No comments were received during the 90-day response period. (Kern County 2010)

4.5.3 No Action Alternative

This section summarizes the potential cultural resources effects associated with the No Action Alternative. Under the No Action Alternative, the Draft HCP would not be implemented, the proposed Incidental Take Permit (ITP) would not be issued, and the covered activities for the Maricopa Sun Solar complex would not occur. The 5,784.3 acres identified as the Solar Sites would likely remain vacant (unless another project were proposed), the 1894.4 acres identified as Conservation Sites would not be permanently conserved, and the proposed Conservation Management Plan would not be implemented. Under this alternative, agricultural activities including grazing or disking, would likely continue where they currently occur.

Under the No Action Alternative, vacant agricultural lands is unlikely to become productive because of the lack of water for irrigation or grazing, Inactive agricultural lands would remain under the classification of Farmland by the State. The land could be converted to another use, including commercial, industrial, mining, or energy production if another project were proposed.

Existing land uses, such as agricultural production, that include ground disturbance, and/or construction of roads, utilities, fences, or structures, could disturb or destroy cultural or resources. Cultural resources are known to exist both within and adjacent to the Covered Lands. The 14 cultural resources, including four historic era archaeological sites, two historic structures/ and one object, seven prehistoric sites, and one prehistoric artifact found within the Covered Lands had been disturbed by agricultural activities that occurred historically.

Ground disturbing activities, except those associated with agricultural productive lands, such as road construction, installation of below ground utilities, or construction of residential or other structures would trigger the need for a local grading or building permit. This would most likely require the permittee to demonstrate that effects on cultural resources would be avoided or minimized.

4.5.3.1 Solar Sites

To protect cultural resources, survey reports and records searches do not include specific locations of known cultural resources. However, because ground disturbing activities that could affect cultural resources and paleontologic resources are expected to occur almost exclusively on the Solar Sites, they are addressed separately from the Conservation Areas.

Construction Phase

No grading, vegetation grubbing, construction, conservation, or other activities will occur on the Solar Sites under the No Action Alternative. Vacant and other agricultural lands will most likely remain unproductive unless a reliable source of irrigation water is located, in which case, agricultural cultivation could resume. Land owners may continue to disc the fields annually or semi-annually. Effects to cultural resources would be minimal because they have already been impacted by more recent human activities primarily related to agricultural operations, and are unlikely to provide further information.

Operations Phase

No Project-related activities would occur on the Solar Sites under the No Action Alternative during the Operations Phase. Ground disturbing activities for ongoing projects in the area, except those associated with agricultural productive lands, such as road construction, installation of below ground utilities, or construction of residential or other structures would trigger the need for a local grading or building permit. When these activities occurred they would most likely require the permittee to demonstrate that effects on cultural resources would be avoided or minimized on a project-specific basis. A minimal effect would occur under the No Action Alternative.

4.5.3.2 Conservation Areas

Cultural resources reports do not include specific locations of known cultural resources in order to protect these resources and sites. However, because ground disturbing activities that could impact cultural resources and paleontologic resources are expected to occur on the Solar Sites, they are addressed separately from the Conservation Areas.

Construction Phase

No grading, vegetation grubbing, construction, conservation, or other activities would occur on the Construction Phase under the No Action Alternative. Vacant and other agricultural lands will remain untilled unless a reliable source of irrigation water is located, in which case, agricultural activities could resume. A minimal effect would occur.

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Operations Phase

No Project-related activities would occur under the No Action Alternative during the Operations Phase. Ground disturbing activities for ongoing projects in the area, except those associated with agricultural productive lands, such as road construction, installation of below ground utilities, or construction of residential or other structures would trigger the need for a local grading or building permit. This would most likely require the permittee to demonstrate that effects on cultural resources would be avoided or minimized on a project specific basis. A minimal effect would occur.

4.5.3.3 Mitigation Measures

No mitigation measures would be proposed for this alternative.

4.5.3.4 Cumulative Effects

The geographic scope for cumulative effects on cultural resources includes a six-mile radius around the Covered Lands. An analysis of cumulative effects takes into consideration the entirety of effects of the projects, zone changes, and general plans discussed in Section 3.5, would have on cultural resources. This geographic scope of analysis is appropriate because the archaeological, historic, and paleontological resources within this radius are expected to be similar to those in the Covered Lands because of their proximity. Similar landforms, environments, and hydrology would result in similar land uses and therefore, site types. Similar geology within this vicinity would likely yield fossils of similar sensitivity and quantity.

No construction activities associated with the proposed Project would occur under the No Action Alternative. No historic and/or archaeological resources would be affected. Furthermore, while not anticipated, prehistoric human remains as well as paleontological sites in the Covered Lands would not be affected under this Alternative. If other projects were proposed within or around the Covered Lands, each would require an individual environmental review, including an evaluation of potential effects to cultural and paleontological resources. With the implementation of mitigation measures for those projects, it is anticipated that a minimal effect would occur to cultural and paleontological resources.

4.5.4 Proposed HCP Alternative

The Proposed HCP Alternative considers activities associated with both the areas where solar facilities will be installed and the areas where Movement Corridors and Conservation Areas will be established in the 5,784.3-acre Covered Lands.

4.5.4.1 Solar Sites

Construction Phase

Ground disturbance activities associated with preparation and construction and similar activities within the solar facilities sites have the potential to adversely affect cultural resources. Grubbing of vegetation, grading, paving, and installation of the solar facilities and associated infrastructure will require heavy equipment to grade the surface, or dig beneath the surface of the proposed Solar Sites. Ground-disturbing activities could be subject to project-specific approvals from federal, State, and local jurisdictions, which may require avoidance buffers and monitoring of activities. Implementation of the mitigation discussed in Section 4.5.4.3 (MM 4.5-1a and MM 4.5-1b) would address potential effects on cultural resources by requiring preconstruction surveys for ground disturbing activities in those areas not previously surveyed, as well as training for those working in these areas. Mitigation Measure MM 4.5-2 would require that if any cultural resources were discovered during construction activities, work would cease until the resource would be evaluated by an archaeologist. Effects on cultural resources that are eligible for the NRHP would be avoided by relocating the disturbance, minimized through protection of sensitive resources in place, or, if necessary mitigated through data retrieval, all in consultation with a qualified archaeologist and SHPO as necessary.

Kern County has many known paleontological resources, including McKittrick Brea Pit, located northwest of the Project site approximately 18 miles. However, no known paleontological resources are located in or adjacent to the Covered Lands.

Project construction activities would involve relatively shallow excavations and trenching, and therefore, effects would be considered minimal. No paleontological resources are known to occur on the Project site. A mitigation measure (MM-4.5-3) is included to address the preservation of paleontological resources when discovered on the site, where feasible. As with cultural resources, it is anticipated that the County will require a Conditional Use Permit and permits for grading before ground disturbing activities can occur. Neither background research nor surveys in the area have revealed evidence of human remains within the Covered Lands. However, mitigation measure MM 4.5-4 has been included in the event that human remains are found during ground-disturbing activities. With the implementation of these mitigation measures, effects on cultural and paleontological resources will be minimal.

Operations Phase

Operation of the solar facilities is not likely to result in effects on cultural resources. Under this Alternative ground disturbing activities are not anticipated to occur once the construction phase has been completed, and it is unlikely that cultural resources, paleontological resources, and or human remains will be affected during this phase of the Project. A minimal effect would occur.

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4.5.4.2 Conservation Areas

Construction Phase

Ground disturbance activities associated with preparation and construction and similar activities within the Conservation Areas have little potential to adversely affect cultural or paleontological resources. Much of the Covered Lands have been impacted by agricultural tilling or disking in the past. On the Conservation Areas, disking and other ground disturbance will cease to encourage native vegetation and wildlife to become reestablished. Only in areas where reseeding is needed will the ground be disturbed. A minimal effect will occur.

Operations Phase

Operation of the Conservation Areas is not likely to result in adverse affects on cultural resources. Under this Alternative, ground disturbing activities are not anticipated to occur in these areas, and it is unlikely that cultural resources, paleontological resources, and or human remains will be affected during this phase of the Project. A minimal effect will occur.

4.5.4.3 Mitigation Measures

Mitigation measures to avoid effects to cultural and paleontological resources that may exist beneath the surface are determined based on Public Resources Code 5097.98-99, Health and Safety Code 7050.5, the Native American Heritage Commission, and recommendations of Pacific Legacy, Inc. The following mitigation measures have been included in the Draft EIR (Kern County 2010, pages 4.5-15 through 4.5-20) and shall apply to the Proposed Action analyzed in this EIS.

MM 4.5-1a: Subsequent to the submission of a specific project, and prior to issuance of grading permits and ground disturbance activities, the project operator shall hire a qualified archaeologist to conduct a Phase-1 cultural resources assessment in areas where none have yet been conducted for this project. A report of the study shall be submitted to the Kern County Planning and Community Development Department for review. Based on the results, further cultural resources analyses (Phase-2) and/or additional mitigation measures may be required.

MM 4.5-1b: Prior to conducting ground-disturbing activities, all contractor employees associated with earthmoving and excavation will attend a training session, informing them of the potential for inadvertently discovered cultural resources and/or human remains, and measures/protocols to be followed to prevent destruction of cultural or paleontological resources or human remains.

MM 4.5-2: If concentrations of historic-period and/or prehistoric cultural materials are encountered during construction activities, all work in the immediate vicinity of the find shall halt until a qualified archaeologist can evaluate the find and make recommendations. Cultural

resource materials may include, but are not limited to, historic resources such as household debris, ceramics, industrially related materials and fire-blown glass, metal, wood, brick or structural remnants. If the qualified archaeologist determines that he discovery represents a potentially significant cultural resource, additional investigations may be required to mitigate adverse effects from project implementation. These additional studies may include avoidance, testing, and evaluation, or data recovery excavation. Construction shall not resume until appropriate measures are recommended or the material are determined to be minimal.

MM 4.5-3: During grading and site preparation activities, if paleontological resources, such as fossils are encountered all work in the immediate vicinity of the fins shall halt until a qualified paleontologist can evaluate the find and make recommendations. If the qualified archaeologist determines that he discovery represents a potentially significant paleontological resource, additional investigations may be required to mitigate adverse effects from project implementation. These additional studies may include avoidance, testing, and evaluation, or data recovery excavation. Construction shall not resume until appropriate measures are recommended or the material are determined to be minimal.

MM 4.5-4: If human remains are discovered within the Project sites, the specific protocols, guidelines, and channels of communication outlined by the Native American Heritage Commission, and in accordance with Section 7050.5 of the Health and Safety Code, Section 5097.98 of the PRC (Chapter 1492, Statues of 1982, SB 297), and SB 447 (Chapter 44, Statues of 1987) will be followed. Section 7050.5 will guide the potential Native American involvement, in the event of discovery of human remains, at the direction of the County Coroner.

4.5.4.4 Cumulative Effect

The geographic scope for cumulative effects on cultural resources includes a six-mile radius around the Covered Lands. An analysis of cumulative effects takes into consideration the entirety that effects of the projects, zone changes, and general plans discussed in Section 3.5, would have on cultural resources. This geographic scope of analysis is appropriate because the archaeological, historic, and paleontological resources within this radius are expected to be similar to those in the Covered Lands. Similar landforms, environments, and hydrology would result in similar land uses and therefore, site types. Similar geology within this vicinity would likely yield fossils of similar sensitivity and quantity.

Construction activities associated with the proposed Project could contribute to the loss of historic and/or archaeological resources that would result in adverse cumulative effects. Furthermore, while not anticipated, undiscovered prehistoric human remains as well as paleontological sites in the Covered Lands, the likelihood of cumulative effects occurring on cultural or paleontological resources are unlikely. With the implementation of mitigation measures, effects to cultural and paleontological resources will be minimal.

4.5.5 Reduced Permit Area Alternative

4.5.5.1 Cultural and Paleontological Resources

Under the Reduced Permit Area Alternative, the Permit Area would be reduced from 5,784.3 acres to 3,682 acres by removing from the Covered Lands: Sites 4-S/4-M (652.5 acres), 6-S (320.9 acres), 7-S/7-M (481.2 acres) and 17-C (647.7 acres). The lands excluded from the Permit Area would likely remain vacant and would continue to be disked on a regular basis for weed control. If water became available, these lands would likely be converted to active agricultural production.

4.5.5.2 Solar Sites

Construction Phase

Ground disturbance activities associated with preparation and construction and similar activities within the solar facilities sites have the potential to adversely affect cultural resources. Grubbing of vegetation, grading, paving, and installation of the solar facilities and associated infrastructure will require heavy equipment to grade much of the surface area, and dig beneath the surface of the proposed Solar Sites. Under Mitigation Measures MM 4.5-1a and MM 4.5-1b, preconstruction surveys will be conducted, and training provided to construction crews and other workers on site. Any new discoveries of cultural or paleontological resources will be recorded. During construction activities, MM 4.5-2, MM 4.5-3 and MM 4.5-4 will be implemented to ensure that any newly discovered cultural or paleontological resources or human remains are properly treated before work resumes in the area of the discovery. With the implementation of these mitigation measures, effects to cultural and paleontological resources will be minimal.

Operations Phase

Operation of the solar facilities is not likely to result in effects on cultural resources. Under this Alternative ground disturbing activities are not anticipated to occur, and it is unlikely that cultural resources, paleontological resources, and or human remains will be affected during this phase of the Project. A minimal effect will occur.

4.5.5.3 Conservation Areas

Construction Phase

Ground disturbance activities associated with preparation and construction and similar activities within the Conservation Areas have little potential to adversely affect cultural resources. Much of the Covered Lands have been impacted by agricultural tilling or disking in the past. On the Conservation Areas, disking and other ground disturbance will cease to encourage native

vegetation and wildlife to become reestablished. Only in areas where reseeding is needed will the ground be disturbed. A minimal effect will occur.

Operations Phase

Operations within the Conservation Areas is not likely to result in effects on cultural resources. Under this Alternative, ground disturbing activities are not anticipated to occur in these areas, and it is unlikely that cultural resources, paleontological resources, and or human remains will be affected during this phase of the Project. A minimal effect will occur.

4.5.5.4 Mitigation Measures

The Reduced Permit Area Alternative will require implementation of the same mitigation measures as the Proposed HCP Alternative, including MM 4.5-1a, MM 4.5-1b, MM 4.5-2, MM4.5-3, and MM 4.5-4.

4.5.5.5 Cumulative Effect

The geographic scope for cumulative effects on cultural resources includes a six-mile radius around the Covered Lands. An analysis of cumulative effects takes into consideration the entirety that effects of the projects, zone changes, and general plans discussed in Section 3.5, would have on cultural resources. This geographic scope of analysis is appropriate because the archaeological, historic, and paleontological resources within this radius are expected to be similar to those in the Covered Lands. Similar landforms, environments, and hydrology would result in similar land uses and therefore, site types. Similar geology within this vicinity would likely yield fossils of similar sensitivity and quantity.

Construction activities associated with the proposed Project could contribute to the loss of historic and/or archaeological resources and would result in adverse cumulative effects. Furthermore, while not anticipated, undiscovered prehistoric human remains as well as paleontological sites in the Covered Lands, the likelihood of cumulative effects occurring on cultural or paleontological resources are unlikely. With the implementation of mitigation measures, effects to cultural and paleontological resources will be minimal.

4.5.6 Comparison of Alternatives

A summary of the relative effect resulting from the Proposed Action is provided in Table 4.5-1. Comparisons between the No Action Alternative, Proposed HCP Alternative, and the Reduced Permit Area Alternative are ranked having an overall effect that is more, less, or similar to the No Action Alternative. The effect determinations are identified by Alternative at the project level and at the cumulative level.

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Table 4.5-1
Comparison of Alternatives to the No Action Alternative

Potential Effect	No Action	Proposed HCP	Reduced Permit Area
CULTURAL RESOURCES			
Solar Panel Areas			
Construction Phase	-	Similar	Similar
Operations Phase	-	Similar	Similar
Conservation Areas			
Construction Phase	-	Similar	Similar
Operations Phase	-	Similar	Similar
PALEONTOLOGICAL RESOURCES			
Solar Panel Areas			
Construction Phase	-	Similar	Similar
Operations Phase	-	Similar	Similar
Conservation Areas			
Construction Phase	-	Similar	Similar
Operations Phase	-	Similar	Similar
Cumulative Effect	-	Similar	Similar

Source: Kern County, 2010.

The analysis of the effects, as well as the magnitude of direct, indirect, and cumulative effects is determined for each alternative, in terms of whether actions would directly or indirectly result in destruction or disturbance of paleontological resources or cultural resources that are eligible for listing in the National Register of Historic Places. The analysis of effects also considers whether each alternative would directly or indirectly result in the alteration or destruction of the existing historic context within the Covered Lands. Ground disturbing activities, such as those conducted during the construction phase on the solar facility areas, and during establishment and maintenance of movement corridors and conservation areas, are most likely to affect cultural and paleontological resources.

The No Action Alternative would have no direct effects to cultural or paleontological resources, except those that might result from continued agricultural activities. As much of the agricultural land is vacant, and is presumed to remain vacant, it is unlikely that effects to cultural or paleontological resources would be likely under this Alternative.

Ground disturbing activities on the 5,784.3 acres planned for the solar facility sites would not affect cultural resources when proposed mitigation measures were implemented under the Proposed HCP Alternative or Reduced Permit Area Alternative. Affects are unlikely to occur to cultural resources in the 1,894.4 acres planned as conservation areas under the Proposed HCP Alternative when proposed mitigation measures are implemented. As it is unlikely that paleontological resources exist within the Covered Lands, and mitigation measures have been

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included in the event any are discovered, activities planned under the Proposed HCP Alternative would not affect paleontological resources.

The Reduced Permit Area Alternative considers the same lands for the Project as does the Proposed HCP Alternative. However, this alternative includes 3,682 acres instead of 5,784.3 in the permitted lands for the solar facilities and fewer acres in the conservation areas. As a project of a smaller footprint, it is likely that fewer cultural or paleontological resources would be discovered under the Proposed HCP Alternative. The acreage not included in this alternative would most likely remain as vacant agricultural lands and would not be affected by covered activities.

As described earlier, it is most likely that any cultural and paleontological resources in the Covered Lands will be discovered only during ground disturbing activities. These activities will be limited to the construction period, with the majority of activity within the Solar Sites. With the implementation of the proposed mitigation measures, it is likely that cultural resources would not be affected by the Proposed Action. Under the No Action Alternative the lands would not receive the same protections as afforded by the mitigation measures, although ground disturbing activities, including agricultural disking or grading, would continue. Therefore effects to cultural and paleontological resources are likely to be less under either of the Action Alternatives than under the No Action Alternative, *unless* agricultural activities occur, whereas more effects could occur under the No Action Alternative.

When mitigation measures are implemented, cumulative effects to cultural resources from solar projects could result in fewer effects than under the No Action Alternative in those cases where the land is being actively farmed. Proposed solar projects would be required, under County, State, and federal regulations, to implement measures to protect discovered cultural resources; however, private landowners engaged in ground disturbing activities, such as farming, are not required to implement these protections. In cases where the land is fallow or vacant, effects to cultural resources are likely to be similar to the No Action Alternative.

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4.6 GEOLOGY AND SOILS

4.6.1 Overview

The potential effects of the alternatives on the geology and soils within the Covered Lands are discussed below. Potential effects associated with each alternative are assessed relative to existing conditions when the Notice of Intent was issued. The analysis of geology and soils focuses on the issues that arise within the Covered Lands. Cumulative effects to geology and soils are normally localized and site-specific.

4.6.2 Methodology

Methodology for determining potential effects associated with Covered Activities on geology and soils includes an examination of how each alternative would expose people or structures to substantial seismic risks as well as other risks related to soils and geology (erosion, liquefaction, etc.). Determination of potential significance effects is based on existing literature, as well as a site reconnaissance, testing, and subsequent laboratory analysis conducted by BSK Associates (Maricopa Sun Solar Complex EIR, p. 4.6-1). The geotechnical report presents findings, conclusions, and recommendations for development of the project site based on the engineering analysis of geotechnical properties of the subsurface conditions. In the sections that follow, a discussion of three alternatives and mitigation to reduce environmental effects is provided.

4.6.3 No Action Alternative

This section summarizes the potential geology and soils effects associated with the No Action Alternative. As discussed in Chapter 2, Section 2.3.2 of this EIS, the No Action Alternative assumes that the HCP would not be implemented, the proposed Incidental ITP would not be issued, and the Covered Activities for the Maricopa Sun Solar complex would not occur. The 5,784.3 acres identified as the Permit Area would likely remain vacant, the 1,894.4 acres identified as Conservation Sites would not be permanently conserved, and the proposed Conservation Management Plan would not be implemented. As a result, there would be no conservation benefit to Covered Species or other listed or sensitive species as a result of the Proposed Action.

Agricultural activities, including grazing or disking, would likely continue resulting in reduced habitat quality as a result of vegetation removal and soil compaction.

4.6.3.1 Exposure to Seismic Risks

California is known for its seismic activity, and Kern County is within the State's seismically active area. As a result, the State has developed many rules and regulations that developers must comply with during development (Alquist-Priolo Earthquake Fault Zoning Act, Seismic Hazards Mapping Act, and California Building Code). Kern County's regulations and codes are based on

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the State's rules and regulations. Any previous development occurring on the Covered Lands would have had to comply with the County's regulations in the Kern County Municipal Code before a building permit was issued.

The Proposed Action site currently consists of undeveloped and vacant agricultural land with relatively flat topography. Existing land uses include uncultivated and cultivated farmland. Under the No-Action Alternative it is likely that the undeveloped setting of the sites would continue for an indefinite period with no physical changes occurring or only periodic cultivation for agricultural production. However, there is no guarantee that the current general plan land use designations of the parcels would be maintained. As such, future development could result in exposing people or structures to adverse effects resulting from geologic or seismic hazards under this Alternative.

4.6.3.2 Exposure to Other Soils and Geology Risks

As discussed in Section 3.6, various soil conditions occur in the Covered Lands. A few sites have groundwater depths as low as 10.7 feet below ground surface. In combination with loose soils, there could be a possibility of potential seismic related ground failure, including liquefaction. In addition, any future disturbance of the land due to agricultural activities could result in erosion. However, it is assumed that past, present, and future agricultural activities on Covered Lands have and will continue to occur under the No Action Alternative in a manner that is consistent with the Kern County General Plan (Chapter 4, Safety Element, page 151 et seq.). A minimal effect would occur.

4.6.3.3 Mitigation Measures

There are no mitigation measures imposed under the No Action Alternative.

4.6.3.4 Cumulative Effect

Seismic related cumulative effects on geology and soils are usually limited and site specific. Site specific conditions include the location of faults and structures which are often affected by areas of potential liquefaction, subsidence, and unstable slopes. It is likely that agricultural activities would continue on the parcels indefinitely. However, in the unlikely event future development did occur, there would be cumulative effects under the No Action Alternative. For example cumulative effects could occur in a seismic event if a potential hazard, such as a power plant for example, were located near a populated area

4.6.4 Proposed HCP Alternative

This section summarizes the potential geology and soils effects associated with the Proposed HCP Alternative. As discussed in Chapter 2.0, Section 2.3.2 of this EIS, the Proposed HCP Alternative assumes that the HCP would be implemented, the proposed Incidental Take Permit

(ITP) would be issued, and the Covered Activities for the Maricopa Sun Solar complex would occur. Activities included in the HCP would include the following: (1) pre-construction, construction, operations and maintenance, and decommissioning activities within Solar Sites; (2) management and maintenance activities associated with Movement Corridors and Conservation Sites, including monitoring and reporting activities; and (3) activities associated with implementation of the conservation program specified in this HCP.

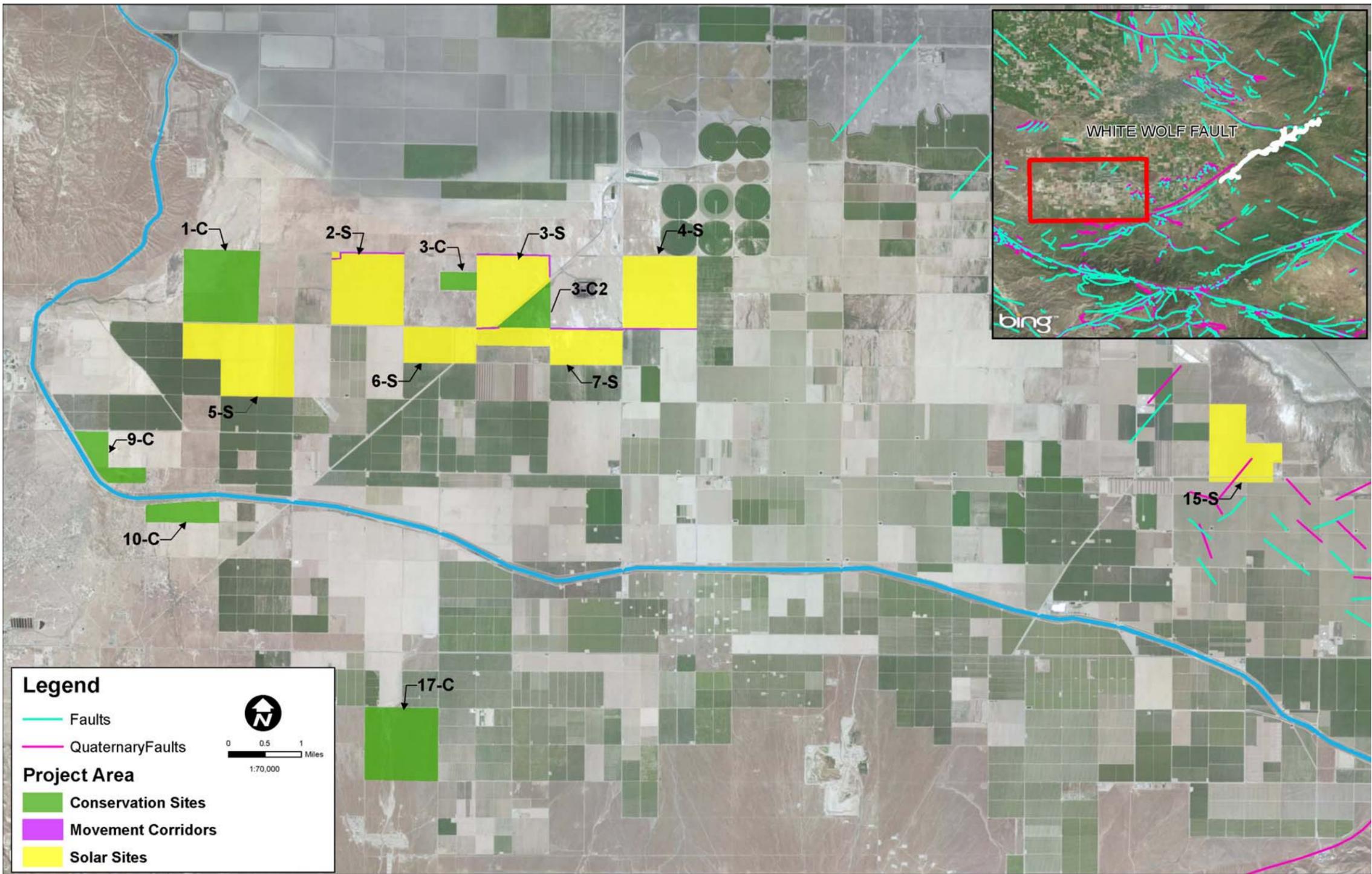
4.6.4.1 Exposure to Seismic Risks

California is known for its seismic activity, and as a result the State has developed many rules and regulations that developers must comply with during development. Kern County's regulations and codes for addressing seismic risks are based on the State's rules and regulations.

The western and the southern end of the San Joaquin Valley are bordered by major active fault systems, making Kern County a historically active seismic area. The nearest active fault to Covered Lands is the White Wolf Fault, which is located approximately 9 miles east (Figure 4.6-1). Any future development occurring on the Covered Lands would have had to comply with the County's regulations before a building permit was issued. Structures used for human occupancy would not be allowed in the surface rupture of known active fault areas. Secondary damage to structures from fault rupture and fault zones could occur. The California Building Code and other regulations, which are utilized by the County, would ensure structural strength to help reduce serious injury and loss of life. Effects would therefore be reduced. All future development will be required to comply with the following State and local laws which are listed in the Regulatory Section of Section 3.6 of this EIS.

Examination of the Proposed HCP Alternative development shows that people within a portion of the Covered Lands could be exposed to seismic hazards. None of the sites are intersected by any active or inactive faults and there are no Alquist-Priolo Special Studies Zones applied to any of the parcels within the Covered Lands. However, some sites within the Covered Lands lie within 1 mile of two short unnamed active faults, and within 2 miles of two additional short, unnamed active faults. Although none of the proposed sites are designated "2.1 Seismic Hazard" by the Kern County General Plan (Chapter 4, Safety Element, page 151 et seq.), active faults do exist close to the sites and could subject the facilities to fault rupture and seismic shaking with strong ground motion resulting from seismic activity along local and more distant active faults. Although the shaking would be less severe from an earthquake of a given magnitude that originates farther from the project site, the effects could potentially be damaging to solar energy infrastructure and present geologic hazards to onsite employees; however, the proposed PV array systems would be supported on drilled pier or drive pile foundations not intended for human occupancy. Implementation of Mitigation Measure MM 4.6-1a, which is listed in Section 4.6.4.2, would reduce effects to minimal levels.

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REGIONAL AND LOCAL FAULTS
 MARICOPA SUN SOLAR LLC

Figure
 4.6 - 1

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4.6.4.2 Exposure to Other Soils and Geology Risks

Although a geologic study has not been prepared, soils within the Permit Area have been analyzed in a Phase 1 geotechnical study conducted by BSK (Kern County 2010). Figure 4.4-2 in Section 3.4 includes a soils map of the Permit Area. Based on water well data, the depth of groundwater varies from 94 feet to depths of as little as 10 feet. Therefore, groundwater levels under at least some of the Permit Area parcels may also be shallow enough to present a potential effect from seismic-related ground failure, including liquefaction. Based on the potential for possible shallow groundwater and seismic shaking at the Permit Area sites, there is a potential for liquefaction. Mitigation Measure MM 4.6-2 would reduce this potential effect to a level below significance as set for seismic requirements listed in the California Building Code, Uniform Building Codes, Kern County Building Code, Chapter 17, and as recommended by a California registered professional engineer (Section 4.6.4.2).

Construction in the Permit Area would include site preparation and grading activities that could result in the loosening of soils and removal of vegetation that acts as a stabilizer. Related potential effects often include erosion and sedimentation. The Permit Area is within a relatively flat area between the Sierra Nevada Mountains and Coast Ranges. Infrastructure associated with the Permit Area sites would not be situated on steep slopes and is not expected to cause or be subject to substantial erosion related to stormwater runoff or seismic events. Furthermore, as noted in the geotechnical study prepared for the EIR, the proposed Permit area parcels are not within a zone prone to soil erosion (Kern County 2010). In addition, as noted in Section 4.8, Hydrology and Water Quality, compliance with the federal CWA as well as regulations of the State Water Resources Control Board (SWRCB) would require that Covered Activities implement a construction Stormwater Pollution Prevention Plan SWPPP, including site-specific Best Management Practices (BMPs) for erosion and sediment control.

Given the relatively flat nature of the Covered Lands, it is unlikely that soil erosion from water runoff would occur; however, during construction, construction vehicles could contribute to soil erosion due to wind, and effects are considered to be substantial without mitigation. Incorporation of Mitigation Measures MM 4.6-3 and MM 4.6-4, below, would reduce effects to minimal levels.

4.6.4.3 Mitigation Measures

The following mitigation measures apply to the Proposed Action:

MM 4.6-1a: Prior to the approval of grading permits on all Permit Area sites, the project operator shall retain a qualified geotechnical engineer to design the project facilities to withstand probable seismic-induced ground shaking on the site. All grading and construction on site shall adhere to all specifications and procedures and site conditions presented in the final design plans, which shall be fully compliant with the seismic requirements of the California Building Code,

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Uniform Building Codes, Kern County Building Code, Chapter 17, and as recommended by a California registered professional engineer. The procedures and site conditions include, but are not limited to, proper site preparation, foundation specifications, and buried metal protection measures. The final structural design shall be subject to approval and follow-up inspection by the Kern County Building Inspection Department. Final compliance requirements shall be provided to the onsite construction supervisor and Kern County building inspector to ensure compliance.

MM 4.6-1b: A detailed Phase II geotechnical evaluation by a qualified soils/geotechnical engineer or geologist, consisting of field exploration (drilling and soil sampling), laboratory testing of soils samples and engineering analysis, shall be prepared to determine soils properties as related to, but not limited to the following: ground motion acceleration parameters, amplification properties of the subsurface units at the specific site(s), the potential for the hydrocompaction of soils to affect the proposed facilities, septic sanitary system feasibility, as well as the expansive soils' potential to affect the proposed facilities. These studies shall be used to determine the appropriate solar panel foundation and support structure engineering to be utilized, as well as building requirements and septic system requirements to be incorporated in the proposed development as appropriate. Copies of all analyses shall be submitted for review and approval by the Kern County Engineering Surveying and Permit Services Department and the Planning and Community Development Department.

MM 4.6-2: The project operator shall limit grading to the minimum area necessary for construction and operation of the project, and shall retain a California registered professional engineer to review the final grading earthwork and foundation plans prior to construction. Final plans shall include BMPs to limit on- and offsite erosion, and a water plan to treat disturbed areas during construction to reduce dust suppression.

MM 4.6-3: The project operator shall use existing roads to the greatest extent feasible to minimize increased erosion. Prior to approval of the grading permit, the final plans shall be reviewed by the County to confirm that existing roads were used to the greatest extent feasible. If the county determines that new roads would be created that are not necessary to the project construction or are redundant to existing roads, the project operator will remove the offending roads from the final plans prior to approval.

MM 4.6-4: The project operator shall design the septic systems and leach fields in accordance with the Kern County Environmental Health Services Department and shall obtain the required permits and/or approvals related to septic systems and leach fields and implement all required conditions.

4.6.4.4 Cumulative Effect

As mentioned above, the geographic scope for considering cumulative effects on geology and soils is limited because effects are usually site specific. Site specific conditions include the location of faults and structures which are often affected by areas of potential liquefaction, subsidence, and unstable slopes. Cumulative effects could occur in a seismic event if a potential hazard, such as a power plant for example, were located near a populated area. However, no such facilities exist or are planned within the development area where the Proposed Action would be located. The Covered Lands are within a seismically active area however, which is bordered by major fault systems including the San Andreas Fault. The fault is approximately 16.5 miles southwest of the project site. Although the Covered Lands are not located within any Alquist-Priolo Earthquake Fault Zones, seismic activity is probable in and around project area. The seismic conditions that occur within the project area exist to varying degrees throughout Kern County. No areas of Kern County are considered seismically inactive.

In addition to the proposed project, other planned projects (present and reasonably foreseeable) within Kern County which are listed on the County's website (<http://pcd.kerndsa.com/planning/environmental-documents>) are subject to review in separate environmental documents that would require conformance to the Kern County General Plan and Municipal Code and require mitigation of seismic hazards and engineering to ensure soil stability. Thus, the cumulative effect from past, present, and reasonably foreseeable future projects would be less than significant, because as stated previously, they would be subject to review in separate environmental documents. As currently designed and with the identified mitigation measures, the Proposed Action would not contribute to a cumulative effect related to geology and soils, including seismic hazards. A minimal effect would occur with the incorporation of the mitigation measures listed in Section 4.6.4.3.

4.6.5 Reduced Permit Area Alternative

This section summarizes the potential geology and soils effects associated with the Reduced Permit Area Alternative. Under this Alternative the Permit Area would be reduced from 5,784.3 acres to 3,682 acres by removing from the Project: Sites 4-S/4-M (652.5 acres), 6-S (320.9 acres), 7-S/7-M (481.2 acres) and 17-C (647.7 acres). The lands excluded from the Permit Area would likely remain vacant and would continue to be disked on a regular basis for weed control. If water became available, these lands would likely be converted to active agricultural production.

Under this alternative, there would be fewer disturbances of the Covered Species than under the No Action Alternative because construction, operations, maintenance and decommissioning activities would occur over a smaller area.

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4.6.5.1 Exposure to Seismic Risks

With the Reduced Permit Area Alternative, the same exposure from seismic risks would occur as discussed in Section 4.6.4, but on fewer Covered Lands as a result of the 2,102-acre reduction. The nearest active fault to Covered Lands is the White Wolf Fault, which is located approximately 9 miles east of site 15. Site 15 would not be removed from the project. Therefore, there would be substantial effects without the incorporation of mitigation measure MM 4.6-1a.

4.6.5.2 Exposure to Other Soils and Geology Risks

As with seismic risks, other effects related to soils and geology risks would also occur as discussed in Section 4.6.4. Areas near sites 1, 15, and 16 have recorded groundwater depths as low as 15 feet (Kern County 2010). The presence of low groundwater near several of the proposed Covered Land parcels, combined with loose soils, poses a potential effect from seismic related ground failure, including liquefaction. Sites 1, 15, and 16 would remain as part of the Covered Lands. Therefore, effects related to liquefaction would remain substantial without mitigation measures applied. Implementation of Mitigation Measure MM 4.6-2 would reduce this potential effect to a minimal level.

Infrastructure associated with the sites would not be situated on steep slopes and is not expected to cause or be subject to substantial erosion related to stormwater runoff or seismic events. Furthermore, as noted in the geotechnical study, the proposed parcels are not within a zone prone to soil erosion.

As noted in Section 4.8, Hydrology and Water Quality of the EIS, compliance with the federal CWA as well as regulations of the State Water Resources Control Board (SWRCB) would require that Covered Activities implement a construction Stormwater Pollution Prevention Plan SWPPP, including site-specific Best Management Practices (BMPs) for erosion and sediment control.

Given the relatively flat nature of the Covered Lands, it is unlikely that soil erosion from water runoff would occur; however, during construction of the Proposed Action, construction vehicles could contribute to soil erosion due to wind, and effects are considered to be potentially substantial without mitigation. Incorporation of Mitigation Measures MM 4.6-3 and MM 4.6-4 would reduce effects to a minimal level as listed in Section 4.6.4.2.

4.6.5.3 Mitigation Measures

Mitigation Measures MM 4.6-1a through MM 4.6-4 listed in Section 4.6.4.2 would be incorporated into the Reduced Permit Area Alternative.

4.6.5.4 Cumulative Effect

Similar to the Proposed HCP Alternative, under the Reduced Permit Area Alternative cumulative effects related to geology and soils would be site specific. The effects of these projects are not of a nature to cause cumulative effects on geologic or soils resources. Cumulative effects could occur in a seismic event if a potential hazard, such as a power plant, were located near a populated area. However, no such facilities exist or are planned within the development area where the Proposed Action would be located.

All planned projects in the vicinity of Covered Lands are subject to review in separate environmental documents that would require conformance to the Kern County General Plan and Municipal Code, and require mitigation of seismic hazards and engineering to ensure soil stability. Thus, the cumulative effect from past, present, and reasonably foreseeable future projects would be less than cumulatively considerable. As currently designed and with the identified mitigation measures, the Proposed Action would not contribute to a cumulative effect related to geology and soils, including seismic hazards. A minimal effect would occur with the incorporation of the mitigation measures listed in Section 4.6.4.2.

4.6.6 Comparison of Alternatives

A summary of results comparing the No Action Alternative to the Proposed HCP Alternative and Reduced Permit Area Alternative are shown in Table 4.6-1. Each of the potential effect areas which include exposure to seismic risks, exposure to other soils and geology risks, and cumulative effect is measured with a less, more, or similar effect ranking as compared to the No Action Alternative.

Table 4.6-1
Comparison of Alternatives to the No Action Alternative

Potential Effect	No Action	Proposed HCP	Reduced Permit Area
Exposure to Seismic Risks	-	More	More
Exposure to Other Soils and Geology Risks	-	More	More
Cumulative Effect	-	Less	Less

Source: Kern County, 2010.

As shown in Table 4.6-1, the Proposed HCP Alternative and the Reduced Permit Area Alternative would have more effects resulting from exposure to seismic risks than the No Action Alternative. This is because under the No Action Alternative Covered Lands would remain vacant and undeveloped for an indefinite period of time with no physical changes occurring beyond the existing or historical conditions. The current Kern County General Plan land use designations of the parcels would be maintained, so employees and solar infrastructure would not be exposed to seismic risks. Although the Reduced Permit Area would not result in as much

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exposure to these same risks as the Proposed HCP, it would still create a greater disturbance than the No Action Alternative.

The same conclusion can be applied to the exposure to other soils and geology risks. Compared to the No Action Alternative, which would have less of an effect on exposure to other soils and geology risks, because there would be no project, the Proposed HCP would result in more effects.

Under the Proposed HCP Alternative and Reduced Permit Area Alternative effects related to geology and soils would be site specific. Cumulative effects could occur in a seismic event if a potential hazard, such as a power plant, were located near a populated area. As proposed under each Alternative there would be no development of a power plant or any similar structure. Under the No Action Alternative however, there could be a change in the general plan designation and zoning which might allow for a structure such as a natural gas or coal fired power plant. This in addition to other past, present, or reasonably foreseeable projects could result in cumulative impacts. Therefore, compared to the No Action Alternative, the Proposed HCP Alternative and Reduced Permit Area Alternative would have fewer (less) effects at listed in Table 4.6-1.

4.7 HAZARDS AND HAZARDOUS MATERIALS

4.7.1 Overview

The potential effects of the alternatives as related to possible hazards and hazardous materials within the Covered Lands are discussed in this section. Potential effects associated with each alternative are assessed relative to existing conditions when the Notice of Intent was issued. The analysis of hazardous materials focuses on the issues that arise within the Covered Lands.

4.7.2 Methodology

Methodology for determining substantial effects associated with Covered Activities and hazardous materials includes an examination of how each alternative would contribute to exceeding potential hazardous effects thresholds associated with the following hazards and hazardous materials: solar panels materials, releases from oil extraction and agricultural activities, generation of waste heat, exposure to electric and magnetic fields, risks associated wildfires, and noise exposure. A list of projects related to hazardous wastes was reviewed on the U.S. Environmental Protection Agency's Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Public Access Database, and the area encompassed by the Covered Lands was not on the list.

4.7.3 No Action Alternative

This section summarizes the potential hazards-related effects associated with the No Action Alternative. As discussed in Section 2.3.2, the No Action Alternative assumes that the HCP would not be implemented, the proposed Incidental Take Permit (ITP) would not be issued, and the Covered Activities for the Maricopa Sun Solar complex would not occur. The 5,784.3 acres identified as the Permit Area would likely remain vacant, the 1,894.4 acres identified as Conservation Sites would not be permanently conserved, and the proposed Conservation Management Plan would not be implemented.

4.7.3.1 Hazardous Materials (Hazardous Substances/Solar Panels/Wells/Agricultural Activities)

Under the No-Project Alternative, there would be no potential effects resulting from construction and operation of the Proposed Action, including: site grading, pile-driving, and the use and transportation of petroleum-based lubricants, solvents, fuels, herbicides, and pesticides to and from the site. Therefore, there would be no accidental release of stored materials, transportation of materials containing hazardous substance, or removal of vegetation. Also, no solar panels that may be made of hazardous materials would be installed. Workers would not be exposed to the release of hydrocarbons or other toxic or dangerous chemicals associated with oil into the air, and the dangers associated with operating a facility near an oil well (as discussed in Section 4.7-4, there are areas throughout the project site that are designated as having oil mineral rights).

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The soils would not be disturbed beyond what is currently allowed under the No Action Alternative. Therefore, no worker would be exposed to chemicals that may be in the soil from past agricultural activities. No effect would occur under this alternative.

4.7.3.2 Hazards (Ambient Temperature/Electromagnetic Fields/Airports/Fire)

The No Action Alternative would not have an effect on the current hazards that may exist on Covered Lands. There would be no installation of solar panels, so the ambient temperature of the site would remain unchanged. The creation of EMFs would not occur as no energy-related infrastructure would be installed. The site would remain in its current state, with lands being maintained to reduce fire risks.

4.7.3.3 Mitigation Measures

There are no mitigation measures imposed under the No Action Alternative.

4.7.3.4 Cumulative Effect

Under the No Action Alternative there would be no hazardous materials release that could result from activities during site grading, pile-driving, and the use and transportation of petroleum-based lubricants, solvents, fuels, herbicides, and pesticides to and from the site. Therefore, this Alternative does not have the potential to contribute to hazards and hazardous materials associated with cumulative projects because these types of effects would not occur..

4.7.4 Proposed HCP Alternative

This section summarizes the potential hazards and hazardous materials effects associated with the Proposed HCP Alternative. As discussed in Chapter 2.0, Section 2.3.2 of this EIS, the Proposed HCP Alternative assumes that the HCP would be implemented, the proposed Incidental Take Permit (ITP) would be issued, and the Covered Activities for the Maricopa Sun Solar complex would occur. Activities included in the HCP would include the following: (1) pre-construction, construction, operations and maintenance, and decommissioning activities within Solar Sites; (2) management and maintenance activities associated with Movement Corridors and Conservation Sites, including monitoring and reporting activities; and (3) activities associated with implementation of the conservation program specified in this HCP. The following discussion provides a brief overview of each potential hazard that may result from the proposed project.

Hazardous Substances

Potential effects resulting from construction and operation of the Proposed Action may include the accidental release of stored materials, such as cleaning fluids and petroleum products including lubricants, fuels, and solvents. Some solid hazardous waste, such as welding materials

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and dried paint, may also be generated during construction. These materials would be transported to the site during construction, and any hazardous materials that are produced as a result of the construction of the project would be collected and transported away from the site. The Proposed Action would be subject to all local, State, and federal laws pertaining to the use of hazardous materials on site and would be subject to review by the Kern County Environmental Health Services Department. Through the review process, the project applicant would be required to submit a hazardous materials business plan, which would include a complete list of all materials used on site, how the materials would be transported, and in what form they would be used to the Kern County Environmental Health Services Department/Hazardous Materials Section. This information would be recorded to maintain safety and prevent possible environmental contamination or worker exposure. During construction of the project, material safety data sheets for all applicable materials present at the sites would be made readily available to onsite personnel. During construction of the facilities, non-hazardous construction debris would be generated and disposed of in local landfills; sanitary waste would be managed using portable toilets located at reasonably accessible onsite locations.

Mineral oil would be found in each enclosed transformer, but secondary containment may be required as a condition of approval if required by applicable regulations. Although the mineral oil contained in each transformer would not typically require replacement, any such disposal would be in accordance with all applicable regulations.

Removal and/or maintenance of vegetation areas may require pesticide and herbicide use during both construction and operation. However, mitigation would reduce the potential effects from the proposed application to minimal levels. Potential effects would be considered minimal with the incorporation of the mitigation measures below.

The closest designated route for the transport of hazardous materials located adjacent to the project site is SR-166, approximately 0.25 mile south of the Permit Area. According to Section 2.5.4 of the Kern County General Plan Circulation Element, State Route 166 is designated as an adopted commercial hazardous materials shipping route (Kern County 2009). Adherence to regulations and standard protocols during the storage, transportation, and usage of any hazardous materials would minimize or avoid the potential upset and accident conditions involving the release of hazardous materials into the environment; effects would be minimal.

Solar Panels

The specific type of photovoltaic (PV) technology to be used has not been determined. However, it is anticipated that one of two types of photovoltaic solar panels: (a) microcrystalline; or (b) cadmium telluride (CdTe) would be used. Microcrystalline panels may include small amounts of solid materials that are considered to be hazardous. Because such materials are in a solid and nonleachable state, broken microcrystalline PV panels would not be a source of

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pollution to surface, storm or ground water. Microcrystalline panels removed from the site would be recycled or otherwise disposed at an appropriate waste disposal facility. In CdTe panels, the cadmium is in the environmentally stable form of a compound rather than the leachable form of a metal. The CdTe compound is encapsulated in the PV module with the PV module containing very little cadmium, less than 0.1 percent cadmium by weight. For example, it has been noted that an 8-square-foot area of a CdTe panel contains less cadmium than one size-C nickel-cadmium flashlight battery. Several peer-reviewed studies have evaluated the environmental, health, and safety aspects of CdTe PV panels. These studies have consistently concluded that during normal operations, CdTe PV panels do not present an environmental risk. Specifically, it has been demonstrated that there are no cadmium emissions to air, water, or soil during standard operation of CdTe PV systems and CdTe releases are unlikely to occur during accidental breakage. Furthermore, studies have been conducted of the panels when the stability of the encapsulation is jeopardized, such as if a broken panel was exposed to fire. These studies indicate that even these events result in negligible cadmium emissions, most likely because CdTe has a very high melting temperature of 1,041 degrees Celsius. Disposal risks of cadmium are minimized because of the encapsulation within the panel and because the cadmium can be effectively recycled at the end of the panel's 30- to 35-year life. CdTe panels removed from the site would be returned to the manufacturer for recycling. The PV module manufacturer for this type of PV panel has a prefunded module collection and recycling program that is designed to maximize the recovery of valuable materials for use in new modules or other new products and minimize the environmental effects associated with PV system production. Approximately 90 percent of each collected PV module would be recycled. Current CdTe PV modules pass federal leaching criteria for nonhazardous waste, which means they would not pose a risk for cadmium leaching if placed in a landfill. Peer reviewed articles and studies are available at <http://www.hindawi.com/journals/jse/>.

Oil Extraction Areas

According to the California Department of Conservation, Division of Oil, Gas & Geothermal Resources (DOGGR), some of the Permit Area is located within the administrative boundaries of the Midway Sunset and San Emidio Nose oil fields. The DOGGR map identifies 9 plugged and abandoned wells on-site. A well is plugged by placing cement in the well-bore or casing at certain intervals as specified in California laws or regulations (Department of Conservation 2013). In addition to the plugged and abandoned wells, the applicant has also identified potential drilling sites for 30 different assessor parcel numbers. The proposed project allows for mineral right interests to be served by reserving a maximum of 5 separate 10-acre drill site areas per 640 acres, and allowing for routes of ingress and egress thereto. The locations of the drilling islands have not yet been identified. Activities associated with the exploration and/or development of potential future drill sites for the purposes of oil and gas exploration and production by mineral rights owners will be subject to separate environmental review.

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As a result, construction and development of the Permit Area could lead to employee and construction worker exposure of potential hazardous substances. Potential hazards could include oil spills, the release of hydrocarbons or other toxic or dangerous chemicals associated with oil into the air, and the dangers associated with operating a facility near an oil well. Wells may need to be exposed for inspection and leakage testing prior to construction as determined through the consultation process with DOGGR. The location of all wells would be clearly identified on all site plans, and standard conditions of approval would require that the applicant contact DOGGR to obtain information on the requirements of, and approval to perform, remedial operations in the event that an abandoned or unrecorded oil well be damaged or uncovered during construction activities. Mitigation measures will be required to ensure appropriate handling of the closed wells, and therefore would reduce the effects of existing wells to minimal levels.

Agricultural Activities

The Permit Area was used for agricultural purposes in the past, and therefore pesticides and herbicides were probably applied to the crops and soils at the sites. Consequently, pesticides, herbicides, and associated metals may be present in near surface soils at residual concentrations. Agricultural chemicals in use today are applied in diluted concentrations and, when used properly, degrade relatively quickly; however, older pesticides can linger in the soil for many years. It is not known if environmentally persistent pesticides and herbicides were ever applied within the Permit Area. Therefore, residual traces of pesticides and herbicides may be present on the site, and construction and operation activities may result in the release of dust, thereby potentially exposing these chemicals. Mitigation to control dust would reduce this effect to a minimal level.

Ambient Temperature

Surfaces such as houses, cars, and rocks absorb heat produced by the sun. The arrays consist of PV panels mounted on aluminum and steel support structures, and the support structures have little to no exposure to sunlight. Additionally, the project site will not be covered in its entirety with solar panels. The rows of panels will be placed at 12 to 22-foot intervals from center to center to allow for inspections, cleaning, and any maintenance that might be required. The amount of the sun's heat absorbed by a solar panel is similar to the amount of the sun's heat absorbed by open land. However, solar panels store less heat than the earth because they consist of a thin (approximately three millimeters or 0.12 inches) lightweight, glass that is surrounded by airflow. Therefore, heat dissipates quickly from a solar panel compared to solid earth that dissipates heat slowly. The Proposed Action would have energy-using activities (e.g., inverters), so the project will generate marginal waste heat. Based on this information it is unlikely that the Proposed Action would increase ambient air temperatures at or around the site.

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Electromagnetic Fields

Electromagnetic fields (EMFs) are associated with electromagnetic radiation, which is energy in the form of photons. Radiation energy spreads as it travels and has many natural and human-made sources. The electromagnetic spectrum, the scientific name given to radiation energy, includes light, radio waves, and X-rays, among other energy forms. Concern over EMF exposure generally pertains to human-made sources of electromagnetism and the degree to which they may have adverse biological effects or interfere with other electromagnetic systems. Commonly known human-made sources of EMF are electrical transmission systems and telecommunications systems, as well as electric motors and other electrically powered devices. Radiation from these sources is invisible, non-ionizing, and of low frequency. Generally, in most environments, the levels of such radiation added to natural background sources are low. Electric voltage (electric field) and electric current (magnetic field) from transmission lines create EMFs. Power frequency EMF is a natural consequence of electrical circuits and can be either directly measured using the appropriate measuring instruments or calculated using appropriate information. On January 15, 1991, the California Public Utilities Commission (CPUC) initiated an investigation to consider its role in mitigating the health effects, if any, of electric and magnetic fields from utility facilities and power lines. A working group of interested parties, the California EMF Consensus Group, was created by the CPUC to advise it on this issue. The Consensus Group's fact-finding process was open to the public, and its report incorporated public concerns. Its recommendations were filed with the CPUC in March 1992. Based on the work of the Consensus Group, written testimony, and evidentiary hearings, the CPUC issued its decision (93-11-013) on November 2, 1993, to address public concern about possible EMF health effects from electric utility facilities. The conclusions and findings included the following:

We find that the body of scientific evidence continues to evolve. However, it is recognized that public concern and scientific uncertainty remain regarding the potential health effects of EMF exposure. We do not find it appropriate to adopt any specific numerical standard in association with EMF until we have a firm scientific basis for adopting any particular value.

As a result, the State has not adopted any specific limits or regulation on EMF levels related to electric power facilities.

Airports

A privately owned and operated airport that provides glider and skydiving opportunities for the community and surrounding region is located adjacent to a Permit Area along Corpus Road. There is no specific airport sphere of influence, as determined by the Kern County Airport Land Use Compatibility Plan, and the private skydiving facility does not contain an air-traffic control

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tower. Airstrip use is restricted to a private commercial skydiving company and the private owner.

Section 4.1 of this EIS concluded that the panels would not be expected to cause significant glare that would affect motorists, residents, or other potentially sensitive visual receptors including aircraft and skydiving operations. However, there is a possibility that skydivers could accidentally collide into the panels. Skydiving activities are regulated through the Federal Aviation Administration's (FAAs) Federal Aviation Regulations (FARs) that govern aviation activities (Part 105-2D). The FARs outlines the FAA's requirements for skydivers, pilots and parachute riggers. The FAA recommends that parachute landing areas remain unobstructed, with sufficient minimum radial distances to the nearest hazard. Areas used for skydiving should be unobstructed, with the following minimum radial distances to the nearest hazard:

1. solo students and A-license holders—100 meters
2. B- and C-license holders and all tandem skydives—50 meters
3. D-license holders—12 meters

Hazards are defined as telephone and power lines, towers, buildings, open bodies of water, highways, automobiles, and clusters of trees covering more than 3,000 square meters (United States Parachute Association 2008)

Fire Hazard Areas

The California Department of Forestry and Fire Prevention require counties within California to develop fire protection management plans that address potential threats of wildland fires. The Kern County Wildland Fire Management Plan identifies federal, State, and local responsibility areas for the entire County to facilitate coordination efforts for fire protection related services. Portions of the Permit Area are designated by the Kern County Fire Department within the Local Responsibility Area (LRA) for unincorporated portions of Kern County. The Permit Area is designated as LRA "unzoned," although portions of a few parcels are designated as LRA "moderate" fire severity. However, the Permit Area is not within a Federal Responsibility Area (FRA) or State Responsibility Area (SRA). Figure 4.7-1 illustrates Fire Hazard Severity Zones.

The Permit Area is currently vacant and void of vegetation and the risk of exposing people or structures to fire hazards within the immediate surrounding areas are low. Because the Permit Area is not within a designated SRA or FRA, potential effects associated with the construction and operation of the Proposed Action are considered to be minimal, and no mitigation is required.

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Noise

Construction and deconstruction would create noise. Pile driving noise could be carried some distance in this area. The nearest resident is located on the southeastern corner of Gardner Field Road and Basic School Road, approximately 0.5 miles south of APN 220-170-07.

According to a Pile Driver Noise Analysis that was completed by AECOM for the Blythe Solar Power Project, a maximum instantaneous sound level of 84 dBA was based on information provided in the Operator's Manual for a Vermeer PD10 pile driver. Table 4.7-1 lists the standard noise attenuation rate of -6 dBA per doubling of distance for point sources, maximum off-site instantaneous noise levels from the pile driver operating at full power (AECOM 2013).

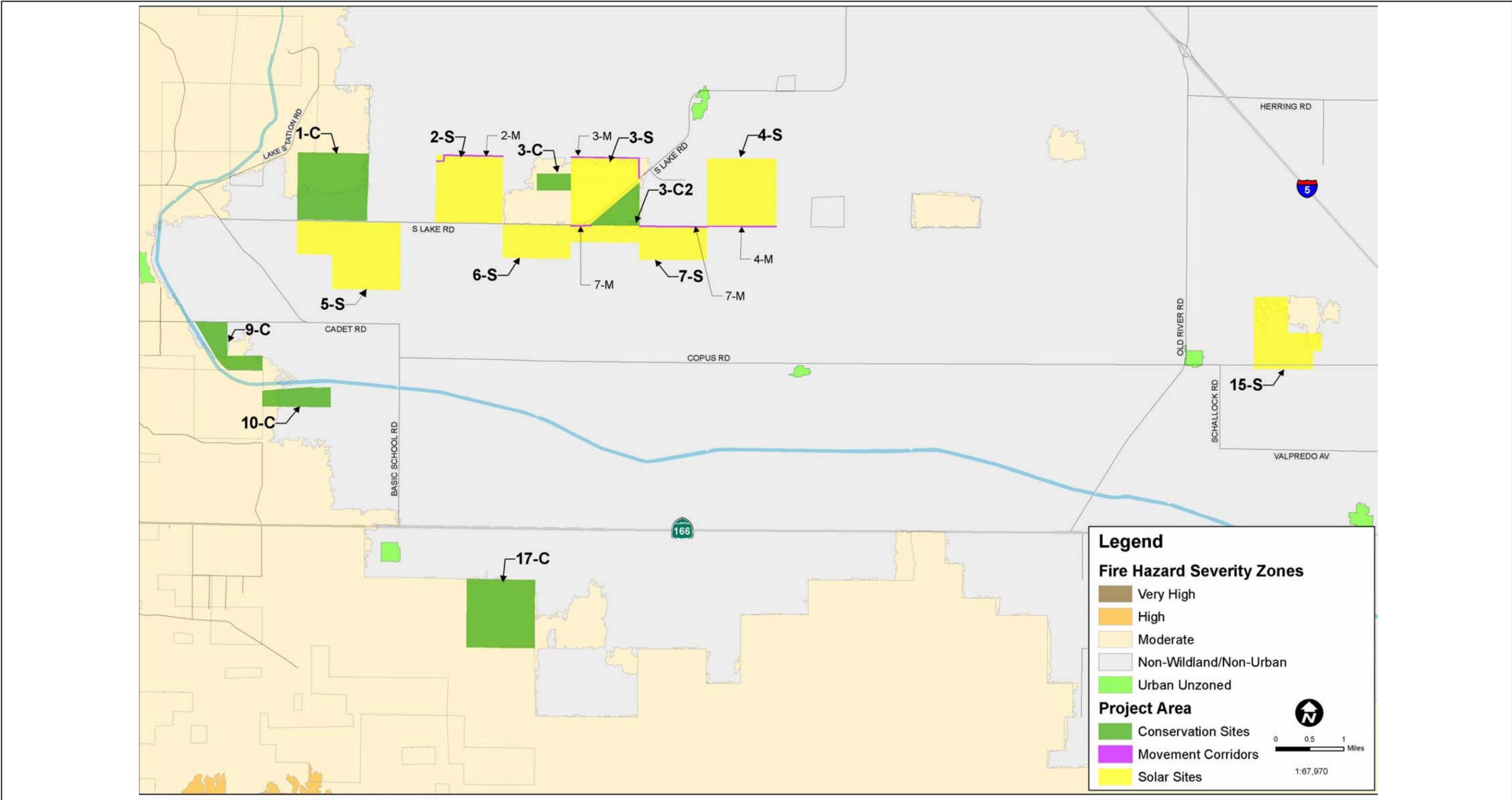
Table 4.7-1
Noise Levels from a Pile Driver

Noise Attenuation	
Distance from Source (feet)	Point Source (-6 dB)
50	84 dBA
100	78 dBA
200	72 dBA
439	65 dBA
800	60 dBA

Source: AECOM, 2013.

Pursuant to the Kern County General Plan's Chapter 3. Noise Element, the acceptable level for outdoor activity is 65 DM Ldn. The results in Table 4.7-1 indicate that at 800 feet (the proposed project site would be over 2,600 feet from the nearest resident) from the source, the noise level would be 60 dBA. This falls well below the County's threshold. However, in order to meet the criteria listed in Table 4.7-1, either the Vermeer PD10 pile driver or similar piece of equipment would have to be utilized for the proposed project. Therefore, Mitigation Measure MM 4.7.2 will be applied to the proposed project.

The Permit Area of solar development is subject to periodic levels of high wind. There is no evidence in the record to suggest that substantial levels of noise would result from wind blowing through the facility during operation of the project. A minimal effect would occur. Section 4.4 addresses noise effects on biological resources.



FILE: YBK-SERVER-02\Projects\Projects\2009\09160_02\GIS\MXD\RevisedM 7-1 Fire Hazard Zones.mxd MODIFIED: 10/14/2013

Source: Maricopa Sun Solar LLC/ESRI



FIRE HAZARD SEVERITY ZONES
 MARICOPA SUN SOLAR LLC

Figure
 4.7 - 1

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4.7.4.1 Hazardous Materials (Hazardous Substances/Solar Panels/ Wells/Agricultural Activities)

Hazardous materials would include hazardous substances from construction and operation of the Proposed Action which may result in the accidental release of stored materials such as cleaning fluids and petroleum products including lubricants, fuels, and solvents. Some solid hazardous waste such as welding materials and dried paint may also be generated during construction. These materials would be transported to the site during construction, and any hazardous materials that are produced as a result of the construction of the project would be collected and transported away from the site. Mitigation Measures MM 4.7-3 and MM 4.7-4 would reduce effects to minimal levels.

Solar panels would include either (a) microcrystalline; or (b) cadmium telluride (CdTe). Microcrystalline that has small amounts of solid materials that are considered to be hazardous. Because such materials are in a solid and nonleachable state however, broken microcrystalline PV panels would not be a source of pollution to surface, storm or ground water. Microcrystalline panels removed from the site would be recycled or otherwise disposed at an appropriate waste disposal facility. In CdTe panels, the cadmium is in the environmentally stable form of a compound rather than the leachable form of a metal. A minimal effect would occur from the solar panels.

As mentioned previously, there are a total of 9 plugged wells in all. Construction and development of the Permit Area could lead to employee and construction workers being exposed to oil spills, the release of hydrocarbons or other toxic or dangerous chemicals associated with oil into the air, and the dangers associated with operating a facility near an oil well. Mitigation Measure MM 4.7-3 will be required to ensure appropriate handling of the closed wells, and therefore would reduce the effects of existing wells to minimal levels.

Lastly, it has been determined that residual traces of pesticides and herbicides may be present on the site from past agricultural activities, and construction and operation activities may result in the release of dust, thereby potentially exposing these chemicals. Mitigation Measures MM 4.7-3 and MM 4.7-4 will reduce this effect to a minimal level.

4.7.4.2 Hazards (Ambient Temperature/Electromagnetic Fields/Airports/Fire)

Hazards related to ambient temperature changes originating from solar panels would result in a minimal impact, due to the design of the solar panel. Heat dissipates quickly from a solar panel compared to solid earth that dissipates heat slowly. Although the Proposed Action would generate some energy heat with equipment such as inverters, the waste would be marginal. To date, there is nothing in the record to indicate that the Proposed Action would increase ambient air temperatures at or around the site. Therefore a minimal effect would occur.

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Currently, the State has not adopted any specific limits or regulation on EMF levels related to electric power facilities. Therefore a minimal effect would occur.

As concluded in the Aesthetics section of this EIS, the panels would not be expected to cause significant glare for motorists, residents, or other potentially sensitive visual receptors including aircraft and skydiving operations

Currently, the Permit Area is vacant and void of vegetation and the risk of exposing people or structures to fire hazards within the immediate surrounding areas are low. Because this area is not within a designated SRA or FRA, potential effects associated with the construction and operation of the Proposed Action are considered to be minimal, and no mitigation is required.

Although construction and deconstruction would create noise, these activities would have to comply with federal, State, and local regulations and guidelines. A minimal effect would occur.

4.7.4.3 Mitigation Measures

MM 4.7-1: During construction, should installation of trackers and panels require a pile driver to drive in steel support piles, the applicant shall use the Vermeer PD10 pile driver, or a similar piece of equipment that would not exceed the County of Kern's 65 DM Ldn limit at the nearest resident.

MM 4.7-2: The plugged and/or abandoned wells located within the project boundaries shall be inspected and tested for leakage prior to construction activities. Remedial operations will be performed if necessary. The well locations shall be recorded on all future maps of the project. A copy of the map shall be submitted to the California Department of Oil, Gas, & Geothermal Resources (DOGGR). In the event that other abandoned or unrecorded wells are uncovered or damaged during excavation or grading activities, remedial plugging operations may be required. DOGGR shall be contacted for requirements and approval, and copies of said approvals shall be submitted to the Kern County Planning and Community Development Department.

MM 4.7-3: In accordance with the California Health and Safety Code and Kern County regulations, the project operator shall prepare a hazardous materials business plan and submit it to the Kern County Environmental Health Services Department/Hazardous Materials Section for review and approval. The hazardous materials business plan will delineate hazardous material and hazardous waste storage areas; describe proper handling, storage, transport, and disposal techniques; describe methods to be used to avoid spills and minimize effects in the event of a spill; describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction; and establish public and agency notification procedures for spills and other emergencies, including fires.

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The hazardous materials business plan will also include procedures to avoid or minimize dust from existing residual pesticide and herbicide use that may be present on the site. The project operator will provide the hazardous materials business plan to all contractors working on the project and will ensure that one copy is available at the project site at all times.

MM 4.7-4: The contractor or personnel shall use herbicides that are approved for use by the California Department of Fish and Wildlife. Workers applying herbicides shall have all appropriate State and local herbicide applicator licenses and comply with all State and local regulations regarding herbicide use. Herbicides shall be mixed and applied in conformance with the product manufacturer's directions. The herbicide applicator shall be equipped with splash protection clothing and gear, chemical resistant gloves, chemical spill/splash wash supplies, and material safety data sheets for all hazardous materials to be used. To minimize harm to wildlife, vegetation, and water bodies, herbicides shall not be applied directly to wildlife; products identified as non-toxic to birds and small mammals will be used if nests or dens are observed; and herbicides shall not be applied within 50 feet of any surface water body when water is present. Herbicides shall not be applied if it is raining at the site, rain is imminent, or the target area has puddles or standing water. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is observed to be drifting to a non-target location, spraying shall be discontinued until conditions causing the drift have abated.

4.7.4.4 Cumulative Effect

The Proposed Action would result in activities during project construction and operation, including site grading, pile-driving, and the use and transportation of petroleum based lubricants, solvents, fuels, herbicides, and pesticides to and from the site. However, conformance with existing federal, State and County regulations and implementation of Mitigation Measures MM 4.7-1 through MM 4.7-4 as listed above would reduce this effect to a minimal level. In regards to the geographic scope, this effect does not have the potential to contribute to hazards associated with cumulative projects because these types of effects would be localized to the immediate vicinity of the project site. Additionally, the implementation of appropriate safety measures during construction of the Proposed Action would reduce the effect to a level that would not contribute to cumulative effects. Therefore, effects associated with past, present, and reasonably foreseeable future projects would not be cumulatively considerable.

4.7.5 Reduced Permit Area Alternative

This section summarizes the potential hazards and hazardous materials effects associated with the Reduced Permit Area Alternative. Under this Alternative the Permit Area would be reduced from 5,784.3 acres to 3,682 acres by removing the following sites: Sites 4-S/4-M (652.5 acres), 6-S (320.9 acres), 7-S/7-M (481.2 acres) and 17-C (647.7 acres). The lands excluded from the Permit Area would likely remain vacant and continue to be disked on a regular basis for weed

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control. If water became available, these lands may be converted to active agricultural production.

4.7.5.1 Hazardous Materials (Hazardous Substances/Solar Panels/Wells/Agricultural Activities)

With the Reduced Permit Area Alternative, the same exposures to hazardous materials including hazardous substances, solar panel hazardous materials, abandoned and plugged wells, hazardous materials, and agriculture pesticides and herbicide would occur as discussed in Section 4.7.4, but on fewer Covered Lands as a result of the 2,102-acre reduction. There would still be substantial effects without the incorporation of Mitigation Measures MM 4.7-1 through MM 4.7-4, but on a smaller scale.

4.7.5.2 Hazards (Ambient Temperature/Electromagnetic Fields/Airports/Fire)

Again, with the Reduced Permit Area Alternative, the same exposures to hazards including a generation of waste heat, addition of EMF levels related to electric power facilities, and ground related glare from solar panels would occur as discussed in Section 4.7.4, but on fewer Covered Lands as a result of the 2,102-acre reduction. There would be a minimal effect.

4.7.5.3 Mitigation Measures

Mitigation Measures MM 4.7-1 through MM 4.7-4 listed in Section 4.7.4.3 would be incorporated into the Reduced Permit Area Alternative.

4.7.5.4 Cumulative Effect

The same cumulative effect that is discussed in Section 4.7.4.4, would also apply to the Reduced Permit Area Alternative, but the effects would be reduced from 5,784.3 acres to 3,682 acres. Therefore, the Mitigation Measures MM 4.7-1 through MM 4.7-4 would apply, and effects associated with past, present, and reasonably foreseeable future projects would not be cumulatively considerable.

4.7.6 Comparison of Alternatives

A summary of results comparing the No Action Alternative to the Proposed HCP Alternative and Reduced Permit Area Alternative is shown in Table 4.7-2. Each of the potential effect areas, which includes hazardous materials (hazardous substances/solar panels/wells/agricultural activities), hazards (ambient temperature/EMFs/airports/fire), and cumulative effect, is measured with a less, more, or similar effect ranking as compared to the No Action Alternative. The results are discussed below.

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Table 4.7-2
Comparison of Alternatives to the No Action Alternative

Potential Effect	No Action	Proposed HCP	Reduced Permit Area
Hazardous Materials (Hazardous Substances/ Solar Panels/Wells/ Agricultural Activities)	-	More	More
Hazards (Ambient Temperature/EMFs/Airports/Fire)	-	More	More
Cumulative Effect	-	Similar	Similar

Source: Kern County, 2010.

As shown in Table 4.7-2, the Proposed HCP Alternative and the Reduced Permit Area Alternative would have more effects resulting from exposure to hazardous materials than the No Action Alternative. This is because under the No Action Alternative, Covered Lands would remain vacant and undeveloped for an indefinite period of time with no physical changes occurring beyond the existing or historical conditions. There would be no construction activities or operation of solar generating facilities; therefore, hazardous materials would not be associated with this Alternative. The Reduced Permit Area would result in less effects than the Proposed HCP Alternative, but would still be more than the No Action Alternative.

The same conclusion can be applied to hazards. Under the Proposed HCP Alternative, the effects from hazardous substances, solar panels, abandoned and plugged wells, and agriculture would occur, and Mitigation Measures MM 4.7-3 through MM 4.7-4 would have to be incorporated. Effects would also occur from solar generated heat, EMFs, glare generated from solar panels, noise, and possible wildfires, but at a minimal level. This Alternative would also result in the greatest amount of disturbance to the Covered Lands. As compared to the No Action Alternative, which would result in no project and therefore no potential for the occurrence of hazardous materials or hazards, this Alternative would result in more effects on the environment. The Reduced Permit Area Alternative would have the same effects as the Proposed HCP Alternative, but at a reduced scale. Mitigation Measures MM 4.7-3 through MM 4.7-4 would have to be incorporated to reduce effects. However, this impact would still result in more effects than the No Action Alternative.

Cumulative effects would be less under the No Action Alternative because there would be no solar project.

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4.8 HYDROLOGY AND WATER QUALITY

4.8.1 Overview

The potential effects of the alternatives are described in this section compared to existing conditions when the Notice of Intent was issued. The analysis in this section is principally based upon project-related studies including a 2011 Water Supply Assessment prepared for the Maricopa Sun Solar project and the 2010 Maricopa Sun Solar EIR (Kern County 2010) (Section 4.9).

4.8.2 Methodology

The water resource environmental issues that will be utilized for environmental effect evaluation for each EIS-identified Alternative are 1) Runoff and Drainage and 2) Groundwater Effects.

4.8.3 No Action Alternative

This section summarizes the potential water resources issues and environmental consequences associated with the No Action Alternative. It assumes, as defined in Section 2.0, that: the HCP would not be implemented, the proposed Incidental Take Permit (ITP) would not be issued, and the covered activities for the Maricopa Sun Solar complex would not occur. The 5,784.3 acres identified in this EIS as the Permit Area would essentially remain vacant, the 1,894.4 acres identified as Conservation Sites would not be permanently conserved, and the proposed Conservation Management Plan would not be implemented. There is no foreseeable non-agricultural development in the Covered Lands, with the exception of oil well drilling.

4.8.3.1 Runoff and Drainage

There would be no change in the existing drainage patterns from the disked and fallowed land and sparse native vegetation in the Permit Area, no modification of existing runoff volumes or constituency, and no structures erected in the Permit Area. Water for agricultural development is not available on the westerly 50% of the Solar Site areas. Groundwater quality in the easterly 50% is so marginal as to discourage agricultural development and surface water is unavailable. There are, therefore, no runoff or drainage effects from this alternative.

4.8.3.2 Groundwater Effects

There will be no groundwater effects from this alternative because groundwater of adequate quality for agriculture is severely limited and surface water is unavailable to over 95% of the Solar Sites.

The Water Supply Assessment has determined that the existing pattern of agricultural production and water usage in the Wheeler Ridge – Maricopa Water Storage District in which the proposed Project is located has, because of District-provided surface water supply availability, State Water

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Project water distributed through canals and pipelines, resulted in an increase in groundwater levels. There is therefore no depletion of groundwater supplies, net deficit in aquifer volume, or lowering of the groundwater table in the District involved with this alternative.

4.8.3.3 Cumulative Effect

Since the alternative creates no direct or indirect environmental effects, it has no cumulative water resources impact.

4.8.4 Proposed HCP Alternative

The Proposed Action is to develop and maintain a PV solar complex and an HCP for which Incidental Take Permit (ITP) coverage under the FESA is necessary. Covered activities allow for: (1) pre-construction, construction, operation and maintenance, and decommissioning activities within Solar Sites; (2) management and maintenance activities associated with Movement Corridors and Conservation Sites, including monitoring and reporting activities; and (3) activities associated with implementation of the conservation program specified in this HCP.

The establishment of conservation easements on conservation lands and the initiation of management actions on those lands will be phased to coincide with the development of Solar Sites.

4.8.4.1 Runoff and Drainage

Construction

The Permit Area is essentially flat, with only a modest potential for runoff. Construction associated with the project would include grading for access roads, foundations for solar panels, installation of panels, inverters, transformers, circuit breakers, an O&M building, transmission lines, off-site electrical substations, and material laydown and equipment staging areas. Excavation would be required for vertical tracker units and fixed-tilt panel foundations, building foundations, communication trenches, and septic systems. Grading and excavation could affect drainage throughout and from the Permit Area. Santiago Creek, Bitter Creek, Bitterwater Creek, and Cienaga Creek are within the proximity of the Permit Area; all are located south of the Area. Sheet flow across the Solar Sites may be affected by alterations associated with construction of the project. During rainfall events, and particularly during construction activities, there is also the possibility of significant surface erosion and offsite sediment transportation. Nearby dirt roads and staging areas may also be graded in order to accommodate construction activities and access routes at the project. Nonetheless, a grading and drainage plan would be designed to maintain existing contours in order to minimize impacts to the greatest extent feasible. Careful design of access road gradients and other features such as O&M buildings, parking areas, and

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solar panel installation areas, would prevent substantial alterations to drainage patterns and/or erosion.

Potential effects on water quality arising from erosion and sedimentation would be localized and temporary during construction. The construction contractors will be required to implement measures to minimize and contain erosion and sedimentation in accordance with the Kern County Grading Code, and will be required to submit a grading plan to the County for approval prior to commencement of any construction activities. In addition, because the project will disturb more than one acre, the applicant will be required to obtain and comply with an NPDES general construction permit. As required by this permit, the project operator will develop a SWPPP and comply with any regional requirements to meet State water quality objectives. Pending revisions, the NPDES permitting process may require development of a rain event action plan prior to permit approval. Construction-related erosion and sedimentation as a result of soil disturbance will be minimal after implementation of mitigation measures and of best management plans (BMPs) required by the Kern County Grading Code and Floodplain Management Ordinance. Construction of the project will not permanently alter the course of any drainages. Therefore, any potential effect on drainage patterns across the Solar Sites and their access facilities that could result in substantial erosion or siltation on or off site will be minimal.

Although grading will occur at the Solar Sites, substation sites, the O&M building site, and along access roads, the resultant ground disturbance will be spread over a large geographic area that is relatively flat and thus will not alter the overall topography of the program area. Parking areas around the O&M building and onsite access roads will be either decomposed granite or gravel to minimize fugitive dust; however, a small area of concrete asphalt will be required at the entrances to the Solar Sites. In addition, the amount of imported water used for construction (such as water used for dust suppression) will infiltrate into the groundwater basin, and construction BMPs required by the SWPPP will be implemented to minimize surface runoff on and off the Sites. Therefore, the rate or amount of surface runoff resulting from construction activities will not substantially change relative to existing conditions. Water usage during construction will be minimal as no extensive grading is proposed, access roads will be constructed at existing grades, and panel installation does not require water usage.

Although the amount of surface runoff will not substantially change and will be minimized through implementation of BMPs in the SWPPP, runoff patterns and concentrations could be minimally altered by grading activities. Improper design of access roads and Solar Sites could result in an alteration of drainage patterns that would cause flooding. The potential for development of the project to alter existing drainage patterns will be minimized through compliance with the mitigation measures described herein and compliance with design specifications and BMPs required by the Kern County Grading Code and Floodplain

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Management Ordinance. Impacts related to surface runoff during construction will be minimal as the required mitigation measures are implemented.

Encroachment of a solar panels or other Project-related permanent infrastructure into a floodplain, including FEMA-designated Flood Hazard Areas could result in damage to the encroaching structure from flooding or increased flooding on adjacent property. Any placement of structures in areas with special flood hazards within the jurisdiction of unincorporated Kern County will be required to comply with the requirements and construction design specifications of the Kern County Floodplain Management Ordinance (Chapter 17.48, including Article III and the Kern County Grading Code, including Sections 17.28.130, 17.28.140 and 17.28.150).

The project will create a small amount of additional impervious surfaces. These changes would not substantially increase the amount of stormwater runoff. The Permit Area is drained by sheet flow and does not rely on constructed stormwater drainage systems. Drainage plans must be approved by the Kern County Engineering, Surveying and Permit Services Department. Other permit requirements required by the Kern County Grading Code and Floodplain Management Ordinance will minimize stormwater runoff during construction and operations. Effects related to polluted runoff from construction and operation will be mitigated to minimal levels by implementation of the mitigation measures described herein and the BMPs required by the Kern County Grading Code and Floodplain Management Ordinance.

Operation and Decommissioning

There will be minimal development of paved areas. Impervious surfaces throughout the Permit Area will be limited to main access driveways, parking lots, and foundations primarily for substations, O&M buildings, and inverters. New impervious surfaces will occupy a negligible portion of the overall land surface. Solar panels will be above ground, supported on vertical posts driven into the soil.

Solar Site engineering and design plans will be required to comply with the most recent requirements of the Kern County Code of Building Regulations. Prior to the commencement of construction activities, the Applicant will be required to prepare and submit a drainage plan to the Kern County Engineering and Survey Services Department, which will include post-construction structural and nonstructural BMPs. Routine structural BMPs will be required to address water quality effects related to drainage that are inherent in development. Therefore, long-term effects on drainage patterns that could result in substantial erosion and siltation on or off site will be minimal after implementation of the mitigation measures described herein and BMPs required by the Kern County Grading Code and Floodplain Management Ordinance.

Decommissioning activities, as previously described in this EIS – solar panel and hardscape removal and haulaway – will be short-term replicas of construction activities in terms of ground

disturbance and potential erosion, and will be subject to the same grading permit controls by the County of Kern, including a SWPPP and BMPs.

A portion of the Permit Area is currently mapped by FEMA as being in Flood Zone A, a 100-year flood zone (annual flood risk of 1%) as well as Flood Zone X, an area of moderate flood hazard, usually between the 100-year and 500-year floods. Based on the Solar Development Footprint, solar panels and a substation will be sited within a FEMA-designated Flood Hazard Area. Any construction that takes place in areas with special flood hazards or areas with flood-related erosion hazards within the jurisdiction of unincorporated Kern County must comply with the requirements and construction design specifications of the Kern County Grading Code and Floodplain Management Ordinance. Compliance with these codes and ordinances will ensure that construction and operation will not impede or redirect flood flows. Therefore, the Development will not result in substantial effects related to the 100-year flood zone.

The Permit Area is located outside the area of potential flooding from any dam collapse (Isabella Dam).

Because drainage will be minimally altered and new impermeable surfaces will be added, the rate and volume of runoff could change, resulting in flooding offsite. Implementation of the BMPs required by the Kern County Grading Code and Floodplain Management Ordinance will minimize the flow of stormwater during operations. Therefore, long-term effects on drainage patterns across the Permit Area which could result in flooding on or off site will be minimal.

4.8.4.2 Groundwater Effects

Development construction activities (such as grading of access roads) could degrade groundwater quality through erosion and subsequent sedimentation in streams. In addition, an accidental release of potentially harmful materials, such as engine oil, diesel fuel, turbine lubricant, or cement slurry, could degrade water quality in such streams. These potential water quality effects will be minimized through implementation of an approved Stormwater Pollution Prevention Plan, design specifications, BMPs, the Section 402 NPDES General Permit for Stormwater Discharges, and the Kern County Grading Ordinance.

Once the development is fully operational, of water will be required for panel washing or maintenance. Water spray on the solar panels is expected to occur twice a year to remove dust and contaminants, thereby maintaining the panels for the efficient conversion of sunlight to electrical power. The cleaning interval will be determined by the rate at which electrical output degrades between cleanings. Currently, it is expected that approximately one gallon of water will be required for washing each panel. Thus, approximately 8,823,804 gallons per year (27 acre feet per year), for the 4,411,902 solar panels will be required. This is significantly less than that which would result from agriculture on the Solar Sites, approximately 11,300 acre-feet per year.

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Verifying this estimate, a widely used “industry standard” for project planning purposes is 10,000 gallons per year per megawatt. Usage of that standard for this 700 megawatt facility would result in annual usage for this project of 7,000,000 gallons. (Solar Energy Industries Association, 2011, Issues and Policies, Water Use Management)

As noted in Section 2.0, water for washing of PV panels is expected to be trucked from one or more unspecified existing wells within the Wheeler Ridge Maricopa Water District. In the event water is not available from wells within the District, an alternative source will be located and transported to the site to accomplish solar panel cleaning. Effects related to construction and operation of the program are discussed separately below.

Impervious surfaces that would result from operation of the proposed Development will be limited to the parking areas, portions of the area around an O&M building, and – depending on the design of the solar facility – the support foundations for the solar equipment. Improved (earthen or gravel) roads would be located throughout the Solar Development Footprint to provide access to the solar equipment. A majority of the Permit Area will remain permeable. Thus, operations will not substantially alter groundwater infiltration rates, and surface runoff will remain similar to existing conditions.

4.8.4.3 Mitigation Measures

The following mitigation measures will be applied to the Proposed Action:

MM 4.8-1: Prior to issuance of grading permits, the project operator shall submit a Stormwater Pollution Prevention Plan (SWPPP) to the Kern County Planning and Community Development Department that specifies BMPs to prevent all construction pollutants from contacting stormwater, with the intent of keeping all products of erosion from moving off site and into receiving waters. The requirements of the SWPPP shall be incorporated into design specifications and construction contracts. Recommended BMPs for the construction phase may include the following:

- Stockpiling and disposing of demolition debris, concrete, and soil properly;
- Protecting existing storm drain inlets and stabilizing disturbed areas;
- Implementing erosion controls;
- Properly managing construction materials; and
- Managing waste, aggressively controlling litter, and implementing sediment controls.

MM 4.8-2: Prior to issuance of grading permits, the project operator shall prepare a drainage plan that is designed to mitigate runoff and surface water pollution and shall include engineering recommendations to minimize the potential for impeding or redirecting 100-year flood flows. The final design of the solar arrays shall include a 0.5-foot clearance above 1.0 foot of freeboard between the calculated maximum flood depths for Base Elevation and the bottom support rail of

the solar arrays or the finished floor of any permanent structure. Solar sites shall be graded to direct potential flood waters into channels adjacent to the existing and proposed right of ways, without increasing the water surface elevations more than one-foot or as required by Kern County's Floodplain Ordinance. The drainage plan shall be prepared in accordance with the Kern County Grading Code and approved by the Kern County Engineering, Surveying and Permitting Services, Floodplain Management Section prior to the issuance of grading permits.

With implementation of these measures the Proposed Action will have minimal environmental effects.

Conservation Areas and Movement Corridors

The 1,928.2 acres of Conservation Site land that will be protected in its native, or enhanced, state as mitigation until project decommissioning (when the entire Permit Area will be dedicated in perpetuity to this purpose) create no conceivable adverse environmental effects. In actuality, they reduce the potential groundwater usage from any possible future agricultural activities by approximately 670 acre feet per year.

4.8.4.4 Cumulative Effect

The area considered for evaluation of cumulative hydrology and water quality effects is that within the boundaries of the Wheeler-Maricopa Water Storage District.

Runoff and Drainage

The development of irrigated agriculture in areas abutting the Permit Area has created no readily available, documented, mitigated or unmitigated, runoff or drainage effects. There is no reasonably predictive, significant, development in the area which would create such effects. The EIS-analysis discloses no direct or indirect runoff or drainage effects. It is, therefore, concluded that the Project will not create a cumulative runoff and drainage effect.

Groundwater Effects

Effects on groundwater levels occasioned by well-irrigated agriculture in the Wheeler-Maricopa Water Storage District, have by the importation and usage of surface water been mitigated.

The water usage of the HCP Alternative, and its elimination of potential irrigation usage in the Permit Area during the life of the Permit, contributes to a beneficial, not adverse, cumulative groundwater effect.

4.8.5 Reduced Permit Area Alternative

This alternative would provide for a reduction of Permit Area from 5,784.3 acres to 3,682 acres by removing from the Project: Sites 4-S/4-M (652.5 acres), 6-S (320.9 acres), 7-S/7-M (481.2

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acres) and 17-C (647.7 acres), 1,696 acres, 45% of the HCP Solar Sites area (see Chapter 2). The land excluded from the Permit Area would likely remain vacant. Only if water became available, could these lands be converted to active agricultural production.

The database and analysis methodology for this Alternative are the same as those for the HCP Alternative. They will not, therefore, be repeated herein. The section will, rather, textually analyze those subject areas which differ in environmental effect because of changes from the HCP Alternative.

4.8.5.1 Runoff and Drainage

The reductions in the Permit Area will result in proportionate reductions of existing drainage patterns, in contributions of runoff water, in placement of structures within the 100-year flood hazard areas, and in the potential to create incremental runoff water in or from the Permit Area. The regulations with which construction, operation and decommissioning the Alternative are governed are unchanged from those governing the HCP Alternative. The runoff and drainage environmental consequences are thus proportionately less. For neither alternative, with compliance with County regulations and implementation of the County-required mitigation measures (see Section 4.8.4.3), runoff effects and drainage effects are minimal.

4.8.5.2 Groundwater Effects

The groundwater usage for construction, operations (access dust control and panel cleaning) and decommissioning of the Solar Sites, their associated equipment and access facilities and the movement corridors will be 55%, less than that of the Proposed HCP Alternative (13 acre-feet per year).

4.8.5.3 Mitigation Measures

The mitigation measures described in Section 4.8.4.3, and their implementation's effectiveness in reducing and environmental effects of this alternative to a minimal level, remain applicable.

Conservation Area

The analysis of water resources effects of Conservation Area implementation under this Alternative remains the same as that of the Proposed HCP Alternative.

4.8.5.4 Cumulative Effect

The same analyses as for the Proposed HCP Alternative proportionally apply to this alternative. For the reasons described in 4.8.6.2, there are no cumulative environmental effects from the implementation of this alternative.

4.8.6 Comparison of Alternatives

A summary of results comparing the No Action Alternative to the Proposed HCP Alternative and Reduced Permit Area Alternative is shown Table 4.10-2. Each of the potential effect areas which includes runoff and drainage, groundwater, and cumulative effect is measured with a less, more, or similar effect ranking as compared to the No Action Alternative.

Table 4.8-1
Comparison of Alternatives to the No Action Alternative

Potential Effect	No Action	HCP	Reduced Permit Area
Runoff and Drainage	-	More	More
Groundwater Effect	-	Less	Less
Cumulative Effect	-	Similar	Similar

Under the No Action Alternative, Covered Lands would remain vacant and undeveloped for an indefinite period of time with no significant physical changes occurring beyond the existing or historical conditions. There would be no construction activities or operation of solar generating facilities; therefore, hydrology and water quality effects would not be associated with this Alternative. Under this Alternative there would be no foreseeable disturbance of the land. Under the Proposed HCP Alternative, there would be increased ground disturbance associated with installation of the solar panels.

The Reduced Permit Area Alternative would have the same effects as the Proposed HCP Alternative, but at a reduced scale.

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4.9 LAND USE AND PLANNING

4.9.1 Overview

This section describes the potential effects of the alternatives on land use in the Covered Lands compared to existing conditions when the Notice of Intent was issued. As described in Section 3.9, Land Use, the proposed Project consists of approximately 5,784 acres of primarily, vacant agricultural land. The Solar Sites include a number of noncontiguous parcels in the Westside Subarea of the San Joaquin Valley within Kern County's Valley Region. Approximately 3,798 acres would be utilized for the solar arrays and supporting infrastructure, as well as movement corridors and required setbacks, with the remaining approximate 1,894 acres set aside as conservation areas.

4.9.2 No Action Alternative

This section summarizes the potential effects on land use associated with the No Action Alternative. As discussed in Section 2.3.2, the No Action Alternative assumes that the HCP would not be implemented, the proposed Incidental Take Permit (ITP) would not be issued, and the Covered Activities for the Maricopa Sun Solar complex would not occur. The 5,784.3 acres identified as the Permit Area would likely remain vacant, the 1,894.4 acres identified as Conservation Sites would not be permanently conserved, and the proposed Conservation Management Plan would not be implemented.

The Covered Lands have the following land use designations in the Kern County General Plan: 8.1 (Intensive Agriculture); 8.1/2.5 (Intensive Agriculture/Flood Hazard); 8.3/2.5 (Extensive Agriculture/Flood Hazard); 8.5/2.5 (Resource Management/Flood Hazard); and 8.1/2.3 (Intensive Agriculture/Shallow Groundwater). The Covered Lands are zoned A (Exclusive Agriculture) by the Kern County Zoning Ordinance.

Under the Proposed HCP Alternative, the Project would be largely consistent with applicable land use plans, policies, implementation programs and regulations. The Project would be consistent of the County's goals and policies to "assert Kern County's position as California's leading energy producer, to encourage safe and orderly energy development in the County, including research and demonstration projects, and to become actively involved in the decisions and actions of other agencies as they effect energy development in Kern County" (Energy Element, 5.4.5 Solar Energy Development).

The Covered Lands are zoned Exclusive Agriculture. The purpose of the Exclusive Agriculture district is to designate areas that are suitable for agricultural uses and prevent the encroachment of incompatible uses onto agricultural lands, and the premature conversion of such lands to nonagricultural uses. Permitted land uses in this district include agriculture; as well as

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commercial uses such as, utility lines, substations and communication facilities; resource extraction; energy development; and miscellaneous accessory structures.

According to Kern County Zoning Ordinances 19.12.030.g, solar energy electrical generators that exceed one acre of land for offsite uses are permitted within area zoned Exclusive and Limited Agriculture with approval of a CUP. The Proposed Action would require approval of conditional use permits (CUP 5, Map 158 and CUP 7, Map 159) to allow for the construction and operation of a solar electrical generating facility in the A (Agriculture) zone. To maximize use of the Covered Lands, the applicant has requested an amendment to the Kern County General Plan Circulation Element (GPA 5, map 158 and GPA, Map 159) to eliminate the future road reservations. The General Plan's Circulation Element (2.3 Highways, 2.3.3. Highway Plan, Goals 1, 2 and 3) require the protection of corridors for future transportation facilities. Within the Covered Lands, the midsection lines are not part of any development plan and do not connect to any existing or future roadways. Elimination of the midsection lines as roadways would not negatively affect transportation or circulation in the area, or result in any increase in the traffic load and capacity of the existing street system. With approval of the proposed CUPs, the Covered Lands would be compatible with the current General Plan designations.

4.9.2.1 Solar Sites

Under the No Action Alternative, no changes in land use or zoning would occur. Vacant agricultural lands would remain designated as Agricultural, which is consistent with the General Plan and zoning of Kern County. Roadways, access areas, solar panels, associated infrastructure and buildings would not be constructed. A CUP would not be necessary to comply with Kern County zoning and General Plan policies, and other regulations. The Farmland Mapping and Monitoring Program (FMMP) designations for the Covered Lands would remain in place until reevaluated.

4.9.2.2 Conservation Areas

Under the No Action Alternative, no changes in land use or zoning would occur. Vacant agricultural lands would remain designated as Agricultural, which is consistent with the General Plan (page 53, Map Provisions: Resource) and zoning of Kern County. The FMMP designations for the Covered Lands would remain in place until reevaluated.

4.9.2.3 Mitigation Measures

There are no mitigation measures imposed under the No Action Alternative.

4.9.2.4 Cumulative Effect

The geographic scope for cumulative effects related to land use includes closely related past, present, and reasonably foreseeable future projects located in the surrounding area. Under the

No Action Alternative, the Covered Lands would comply with applicable FESA, Section 10 requirements, the State Farmland Mapping and Monitoring Program (FMMP), and Kern County land use plans, policies and requirements, if converted to a non-agricultural use.

Land use effects are generally localized and individual effects would be addressed on a project-by-project basis. However, the cumulative projects include other proposed solar projects in Kern County and within the SJVAB, expansion of an almond processing facility, and a transportation project. Under the No Action Alternative, the Proposed Action would have no environmental effects on land use.

4.9.3 Proposed HCP Alternative

This section summarizes the potential effects on land use associated with the Proposed HCP Alternative. Under this Alternative, the approximately 5,784-acres of Covered Lands would be developed, with 3,798.3 acres to include the Solar Sites and 1,894.4 acres to be established as the Conservation Areas.

The Covered Lands have the following land use designations in the Kern County General Plan: 8.1 (Intensive Agriculture); 8.1/2.5 (Intensive Agriculture/Flood Hazard); 8.3/2.5 (Extensive Agriculture/Flood Hazard); 8.5/2.5 (Resource Management/Flood Hazard); and 8.1/2.3 (Intensive Agriculture/Shallow Groundwater). The Covered Lands are zoned A (Exclusive Agriculture) by the Kern County Zoning Ordinance.

Under the Proposed HCP Alternative, the Project would be largely consistent with applicable land use plans, policies, implementation programs and regulations. The Project would be consistent of the County's goals and policies to "assert Kern County's position as California's leading energy producer, to encourage safe and orderly energy development in the County, including research and demonstration projects, and to become actively involved in the decisions and actions of other agencies as they effect energy development in Kern County" (Energy Element, 5.4.5 Solar Energy Development).

The Covered Lands are zoned Exclusive Agriculture. The purpose of the Exclusive Agriculture district is to designate areas that are suitable for agricultural uses and prevent the encroachment of incompatible uses onto agricultural lands, and the premature conversion of such lands to nonagricultural uses. Permitted land uses in this district include agriculture; as well as commercial uses such as, utility lines, substations and communication facilities; resource extraction; energy development; and miscellaneous accessory structures. As discussed in Section 4.2 Agriculture, the continued use of agricultural uses on lands within the Covered Lands is not feasible because of a lack of reliable irrigation water. Therefore, the Proposed Action would not interfere with agricultural uses because such uses on the Covered Lands cannot be maintained.

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According to Kern County Zoning Ordinances 19.12.030.g, solar energy electrical generators that exceed one acre of land are for offsite uses are permitted within area zoned Exclusive and Limited Agriculture with approval of a CUP. The project would require approval of conditional use permits (CUP 5, Map 158 and CUP 7, Map 159) to allow for the construction and operation of a solar electrical generating facility in the A (Agriculture) zone.

To maximize use of the Covered Lands, the applicant has requested an amendment to the Kern County General Plan Circulation Element (GPA 5, map 158 and GPA, Map 159) to eliminate the future road reservations. In many cases, these include setbacks, rights-of-way, and roadways along topographic section or mid-section lines. Roadways were charted along these lines because, as explained in Policy 1 of the Circulation Element, “the road centerline can be determined by an existing survey.” The General Plan’s Circulation Element (2.3 Highways, 2.3.3. Highway Plan, Goals 1, 2 and 3) require the protection of corridors for future transportation facilities. Within the Covered Lands, the midsection lines are not part of any development plan and do not connect to any existing or future roadways. Elimination of the midsection lines as roadways would not negatively affect transportation or circulation in the area, or result in any increase in the traffic load and capacity of the existing street system. With approval of the proposed CUPs, the Covered Lands would be compatible with the current General Plan designations.

Kern County land use regulations, goals, and policies, will apply to the entirety of the Covered Lands for the duration of the project. In addition to the goals, policies, and regulations described above, the Proposed HCP Alternative would comply with General Plan requirements to maintain, “a safe and healthful environment and a prosperous economy by preserving valuable natural resources,” (1.10.1 Public Services and Facilities, Goal 1) by implementing the Conservation Areas under the Proposed HCP Alternative. This Alternative would also be consistent with the General Plan’s Energy Element (Policy 9) to, “develop and implement measures which result in long term compensation for wildlife habitat, which is unavoidably damaged by energy exploration and development activities.” Under this Alternative, approximately 1,894.4 acres would be included in the Conservation Areas, intended to re-establish native vegetation and encourage wildlife, including sensitive species, within the Covered Lands. Movement Corridors would be installed on the perimeter of four Solar Sites as well.

The Kern County General Plan includes policies to ensure that land use does not conflict with the two military aviation installations, China Lake Naval Air Weapons Station and Edwards Air Force Base, both located considerably east of the Covered Lands. Each installation has unique flying operations. With the implementation of renewable energy projects, the military has identified potential conflicts of users of the radio frequency spectrum located both on and off military installations as an area to be reviewed for compatibility issues.

4.9.3.1 Solar Sites

The General Plan and zoning designations and the CUPs to allow the solar facility and eliminate the midsection lines as roadways apply to the entire Covered Lands for the entire duration of the Project (20 to 30 years). The CUPs, to be approved by the Kern County Board of Supervisors, must be in place for the Covered Lands before the construction phase can begin, and will remain in effect for the life of the Project. Once approved, the Project will be consistent with the General Plan.

As described above, this Alternative would include the implementation of the HCP, which would require that Movement Corridors be established within the acreage intended for the solar facility, in compliance with General Plan Policy 9 of the Energy Element. Additionally, lands within the Solar Sites will be placed into permanent conservation easement and managed for the benefit of Covered Species in perpetuity as mitigation for the project's effects on species.

4.9.3.2 Conservation Areas

As noted under 4.9.2.1 Solar Sites, Kern County land use regulations, goals, and policies, will apply to the entirety of the Covered Lands for the duration of the project. Under this Alternative, approximately 1,894.4 acres would be included in the Conservation Areas, intended to re-establish native vegetation and encourage wildlife, including sensitive species, within the Covered Lands. The CUPs, to be approved by the Kern County Board of Supervisors, must be in place for the Covered Lands, including both the solar sites and the Conservation Areas before the construction phase can begin, and will remain in effect for the life of the Project. Once approved, the Project will be consistent with the General Plan.

4.9.3.3 Mitigation Measures

The following mitigation measures would be applied to the Proposed Action to reduce potential impacts:

MM 4.9-1: Prior to operation of the solar facility, the project operator shall consult with the Department of Defense to identify the appropriate Frequency Management Office officials to coordinate the use of telemetry to avoid potential frequency conflicts with military operations.

MM 4.9-2: Prior to issuance of any building permit, the project operator will provide a decommission plan for review and approval by the Kern County Engineering, Surveying, and Permit Services Department or a County-contracted consulting firm at a cost to be borne by the project operator. The decommission plan will factor in the cost to remove the solar panels and support structures, replace disturbed soils from removal of support structures, and control fugitive dust on the remaining vacant land. Salvage value for the solar panels and support structures will be included in the financial assurance calculations. This mitigation measure will be in effect only when/if the project operator is incapable of performing the work or when Kern

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County would be required to hire an independent contractor to perform the decommission work. In addition to submitting a decommission plan, the project operator will post or establish and maintain with Kern County financial assurances related to the deconstruction of the site as identified on the approved decommission plan in the event that at any point in time the project manager determines that he/she cannot undertake the decommissioning process as outlined.

The financial assurance required to issuance of any building permit will be established using one of the following:

- An irrevocable letter of credit;
- A surety bond;
- A trust in accordance with the approved financial assurances to guarantee the deconstruction will be completed in accordance with the approved decommission plan; or
- Other financial assurances as reviewed and approved by the County Administrative Office in consultation with the Kern County Planning and Community Development Department.

The financial institution or surety company will give Kern County at least 120 days' notice of intent to terminate the letter of credit or bond. Financial assurances will be reviewed annually by the Kern County Engineering, Surveying, and Permit Services Department or a County-contracted consulting firm at a cost to be borne by the project operator to substantiate that adequate funds exist to ensure deconstruction of all solar panels and support structures identified on the approved decommission plan. Should the project operator deconstruct the site on its own, the County will not pursue forfeiture of the financial assurance. Once deconstruction has occurred, financial assurance for that portion of the site will no longer be required and any financial assurance posted will be adjusted or returned accordingly. Any funds not used through decommission of the site by the County will be returned to the project operator.

4.9.3.4 Cumulative Effect

The geographic scope for cumulative effects related to land use includes closely related past, present, and reasonably foreseeable future projects located in the surrounding area. Under the Proposed HCP Alternative, the Covered Lands would comply with the federal ESA, Section 10 requirements, and Kern County land use plans, policies and requirements.

As described in Section 4.2 Agriculture, the Covered Lands do not meet the criteria for their current designation as Prime Farmlands and Farmlands of Statewide Importance, as utilized under the FMMP. Although the lands have not been actively farmed in over 10 years and the designations as Farmland due to the lack of irrigation are therefore incorrect, the "conversion of

farmland to another use” will be reflected in the revised FMMP maps as a loss of farmland. This change in designation is not directly attributable to the proposed Project, as the proposed Project did not “cause” the land owner ceased agricultural production.

Land use effects are generally localized and individual effects would be addressed on a project-by-project basis. However, the cumulative projects include other proposed solar projects in Kern County and within the SJVAB, expansion of an almond processing facility, and a transportation project. Under the Proposed HCP Alternative, the Project would have no effect on land use.

With regard to cumulative effects of utility-sized solar power generation facilities, there is a potential that outside factors, such as the development of new technology, change in State or national policy that encourages the construction of such facilities, or other economic factors, could result in the abandonment of such facilities by the project owner. The Kern County Zoning Ordinance has provisions regarding the maintenance and abandonment of wind turbines in the WE Combining District (19.64.150). Solar power generation facilities are of similar use and operation and are typically located in rural, agricultural areas of the County where they are subject to rural vandalism and, if abandoned, could result in a dangerous public nuisance and increased public service effects as a result. Unlike other facilities that, once constructed, can be retrofitted and utilized for another specific use, solar power generation facilities have little opportunity for other uses should the site not be in operation. The potential for cumulative effects caused by the abandonment of multiple solar facilities in Kern County could result in effects on surrounding land uses should it be determined that these facilities are no longer viable commercial operations. The HCP includes detailed measures regarding the physical and aspects and timing of decommissioning the Project, such as removal of infrastructure, solar systems; the responsibilities of the project owner. However, a mitigation measure related to the financial issues surrounding decommissioning of solar facilities has been included to establish safeguards to ensure the maintenance of the health, safety, and welfare of the citizens of the County. With the implementation of Mitigation Measure MM 4.10-2, these cumulative land use effects would be considered minimal.

4.9.4 Reduced Permit Area Alternative

Under the Reduced Permit Area Alternative, the Permit Area would be reduced from 5,784.3 acres to 3,682 acres by removing from the Project: Sites 4-S/4-M (652.5 acres), 6-S (320.9 acres), 7-S/7-M (481.2 acres) and 17-C (647.7 acres). The lands excluded from the Permit Area would likely remain vacant and would continue to be disked on a regular basis for weed control. The entirety of the Covered Lands is considered agricultural by the State and County.

The Covered Lands have the following land use designations in the Kern County General Plan: 8.1 (Intensive Agriculture); 8.1/2.5 (Intensive Agriculture/Flood Hazard); 8.3/2.5 (Extensive Agriculture/Flood Hazard); 8.5/2.5 (Resource Management/Flood Hazard); and 8.1/2.3

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(Intensive Agriculture/Shallow Groundwater). The Covered Lands are zoned A (Exclusive Agriculture) by the Kern County Zoning Ordinance.

Under the Reduced Permit Area Alternative, the Proposed Action would be largely consistent with applicable land use plans, policies, implementation programs and regulations. The Proposed Action would be consistent of the County's goals and policies to "assert Kern County's position as California's leading energy producer, to encourage safe and orderly energy development in the County, including research and demonstration projects, and to become actively involved in the decisions and actions of other agencies as they effect energy development in Kern County" (Energy Element, 5.4.5 Solar Energy Development).

The Covered Lands are zoned Exclusive Agriculture. The purpose of the Exclusive Agriculture district is to designate areas that are suitable for agricultural uses and prevent the encroachment of incompatible uses onto agricultural lands, and the premature conversion of such lands to nonagricultural uses. Permitted land uses in this district include agriculture; as well as commercial uses such as, utility lines, substations and communication facilities; resource extraction; energy development; and miscellaneous accessory structures. As discussed in Section 4.2 Agriculture, the continued use of agricultural uses on lands within the Covered Lands is not feasible because of a lack of reliable irrigation water. Therefore, the project would not interfere with agricultural uses because such uses on the Covered Lands cannot be maintained.

According to Kern County Zoning Ordinances 19.12.030.g, solar energy electrical generators that exceed 1 acre of land are for offsite uses are permitted within area zoned Exclusive and Limited Agriculture with approval of a CUP. The project would require approval of conditional use permits (CUP 5, Map 158 and CUP 7, Map 159) to allow for the construction and operation of a solar electrical generating facility in the A (Agriculture) zone.

To maximize use of the Covered Lands, the applicant has requested an amendment to the Kern County General Plan Circulation Element (GPA 5, map 158 and GPA, Map 159) to eliminate the future road reservations. The General Plan's Circulation Element (2.3 Highways, 2.3.3. Highway Plan, Goals 1, 2 and 3) require the protection of corridors for future transportation facilities. Within the Covered Lands, the midsection lines are not part of any development plan and do not connect to any existing or future roadways. Elimination of the midsection lines as roadways would not negatively affect transportation or circulation in the area, or result in any increase in the traffic load and capacity of the existing street system. With approval of the proposed CUPs, the Covered Lands would be compatible with the current General Plan designations.

Kern County land use regulations, goals, and policies, will apply to the entirety of the Covered Lands for the duration of the project. In addition to the goals, policies, and regulations described above, the Proposed HCP Alternative would comply with General Plan requirements to maintain,

“a safe and healthful environment and a prosperous economy by preserving valuable natural resources,” (1.10.1 Public Services and Facilities, Goal 1) by implementing the Conservation Areas under the Proposed HCP Alternative. This alternative would also be consistent with the General Plan’s Energy Element (Policy 9) to, “develop and implement measures which result in long term compensation for wildlife habitat, which is unavoidably damaged by energy exploration and development activities.” Under this alternative, approximately 1,894.4 acres would be included in the Conservation Areas, intended to re-establish native vegetation and encourage wildlife, including sensitive species, within the Covered Lands. Movement Corridors would be installed on the perimeter of four Solar Sites as well.

The Kern County General Plan includes policies to ensure that land use does not conflict with the two military aviation installations, China Lake Naval Air Weapons Station and Edwards Air Force Base, both located considerably east of the Covered Lands. Each installation has unique flying operations. With the implementation of renewable energy projects, the military has identified potential conflicts of users of the radio frequency spectrum located both on and off military installations as an area to be reviewed for compatibility issues.

4.9.4.1 Solar Sites

Under the Reduced Permit Area Alternative, the Solar Sites will be constructed with the approximate 2,343.7 acre parcels. The General Plan and zoning designations and the CUPs to allow the solar facility and eliminate the midsections as roadways apply to the entire Covered Lands for the entire duration of the Project (20 to 30 years). The CUPs, to be approved by the Kern County Board of Supervisor’s must be in place for the Covered Lands before the construction phase can begin, and will remain in effect for the life of the Project. Once approved, the Proposed Action will be consistent with the General Plan.

As described above, this alternative would include the implementation of the HCP, which would require that Movement Corridors be established within the acreage intended for the solar facility, in compliance with General Plan Policy 9 of the Energy Element. Additionally, lands within the Solar Sites will be placed into permanent conservation easement and managed for the benefit of Covered Species in perpetuity as mitigation for the project’s effects on species.

4.9.4.2 Conservation Areas

As noted under 4.9.2.1 Solar Sites, Kern County land use regulations, goals, and policies, will apply to the entirety of the Covered Lands for the duration of the project. Under this alternative, approximately 647.4 acres would be included in the Conservation Areas, intended to re-establish native vegetation and encourage wildlife, including sensitive species, within the Covered Lands. The CUPs, to be approved by the Kern County Board of Supervisor’s must be in place for the Covered Lands before the construction phase can begin, and will remain in effect for the life of

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the Proposed Action. Once approved, the Proposed Action will be consistent with the General Plan.

4.9.4.3 Mitigation Measures

Mitigation Measures 4.9-1 and 4.9-2, as described under Section 4.9.2.3, apply.

4.9.4.4 Cumulative Effect

The geographic scope for cumulative effects related to land use includes closely related past, present, and reasonably foreseeable future projects located in the surrounding area. Under the Proposed HCP Alternative, the Covered Lands would comply with applicable federal Endangered Species Act (ESA), Section 10 requirements, and Kern County land use plans, policies and requirements.

As described in Section 4.2 Agriculture, the Covered Lands do not meet the criteria for their current designation as Prime Farmlands and Farmlands of Statewide Importance, as utilized under the FMMP. Although the lands have not been actively farmed in over 12 years and the designations as Farmland are therefore incorrect, the “conversion of farmland to another use” will be reflected in the revised FMMP maps as a loss of farmland. However, the review of the designations, to be made by the NRCS, will be made independently of the Project, as the proposed Project did not “cause” the land owner ceased agricultural production.

Land use effects are generally localized and individual effects would be addressed on a project-by-project basis. However, the cumulative projects include other proposed solar projects in Kern County and within the San Joaquin Valley Air Basin, expansion of an almond processing facility, and a transportation project. Under the Proposed HCP Alternative, the Project would have no effect on land use.

With regard to cumulative effects of utility-sized solar power generation facilities, there is a potential that outside factors, such as the development of new technology, change in State or national policy that encourages the construction of such facilities, or other economic factors, could result in the abandonment of such facilities by the project owner. The Kern County Zoning Ordinance has provisions regarding the maintenance and abandonment of wind turbines in the WE Combining District (19.64.150). Solar power generation facilities are of similar use and operation and are typically located in rural, agricultural areas of the County where they are subject to rural vandalism and, if abandoned, could result in a dangerous public nuisance and increased public service effects as a result. Unlike other facilities that, once constructed, can be retrofitted and utilized for another specific use, solar power generation facilities have little opportunity for other uses should the site not be in operation. The potential for cumulative effects caused by the abandonment of multiple solar facilities in Kern County could result in effects on surrounding land uses should it be determined that these facilities are no longer viable

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commercial operations. The HCP includes detailed measures regarding the physical and aspects and timing of decommissioning the Project, such as removal of infrastructure, solar systems; the responsibilities of the project owner. However, a mitigation measure related to the financial issues surrounding decommissioning of solar facilities has been included to establish safeguards to ensure the maintenance of the health, safety, and welfare of the citizens of the County. With the implementation of Mitigation Measure MM 4.10-2, these cumulative land use effects would be considered minimal.

4.9.5 Comparison of Alternatives

A summary of results comparing the No Action Alternative to the Proposed HCP Alternative and Reduced Permit Area Alternative is shown Table 4.9-1. Each of the potential effect areas which includes construction and operations phases, and cumulative effect is measured with a less, more, or similar effect ranking as compared to the No Action Alternative.

Table 4.9-1
Comparison of Alternatives to the No Action Alternative

Potential Effect	No Action	Proposed HCP	Reduced Permit Area
Solar Panel Areas			
Construction Phase	-	Similar	Similar
Operations Phase	-	Similar	Similar
Conservation Areas			
Construction Phase	-	Similar	Similar
Operations Phase	-	Similar	Similar
Cumulative Effect	-	Similar	Similar

Source: Kern County, 2010.

Under the No Action Alternative no changes in land use, or General Plan or zoning designation would occur. Under both the Proposed HCP and Reduced Permit Area Alternatives, the Project would be in compliance with Kern County General Plan and zoning requirements with the approval of requested CUPs. These CUPs would allow the project owner to construct and operate a solar facility on lands designated as Agricultural, and would eliminate the midsection lines on which roadways would otherwise be required.

The Proposed HCP Alternative would occur on 5,784.3 acres, with the solar facilities on approximately 3,798.3 acres and the Conservation Areas throughout approximately 1,894.4 acres. The Reduced Permit Area Alternative would be limited to a total of 3,682 acres, with 2,343.7 utilized for the solar facilities and the Conservation Areas located on 647.7 acres.

Under the No Action Alternative agricultural lands would remain as they are, with the possibility of returning to agricultural production if reliable irrigation water became available. Under the Proposed HCP Alternative or the Reduced Permit Area Alternative, upon completion of

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decommissioning, the Covered Lands would be placed into permanent conservation easement and managed for the benefit of Covered Species in perpetuity as mitigation for the project's effects on species. The use of the land for the solar facilities, the Conservation Areas, and the conservation easement are permitted under the Kern County General Plan.

No mitigation measures are required under the No Action Alternative. The Proposed HCP Alternative or the Reduced Permit Area Alternative would require, in addition to compliance with the Kern County General Plan, and federal, State and local requirements, the project owner to implement mitigation measures to ensure that there would be no incompatibility with users of the radio frequency spectrum located both on and off military installations. Mitigation would also be required to assure that policies were in place regarding the financial obligations of the project owners for decommissioning of the project.

Multiple solar facilities are unlikely to create cumulative effects to land use within the County, as these projects are permitted under the Kern County General Plan and its zoning ordinances, with the approval of a CUP. This Proposed Action is expected to result in the permanent conversion of vacant agricultural land to another use, although the use for solar facilities is permitted under the General Plan. Cumulative effects from changes in land use in areas zoned for Agriculture are discussed in more depth in Section 4.2 – Agriculture.

4.10 MINERAL RESOURCES

4.10.1 Overview

This section describes the potential effects of the alternatives on mineral resources use in the Covered Lands compared to existing conditions when the Notice of Intent was issued. Adjacent to the Covered Lands, the J.W. Brown Rock Plant, an aggregate, sand and gravel operation, is located on Gardener Field Road, approximately one mile east of the California Aqueduct. Although the Covered Lands are not within the administrative boundaries of an oil field, there are three plugged oil wells within the Covered Lands, on Site 5-S. DOGGR-recognized oil fields, including Midway Sunset, Buena Vista, San Emidio Nose, Rio Viejo, and Yowlumne are in the close proximity to the Covered Lands. Sand and gravel operations occur primarily on the eastern side of the San Joaquin Valley and foothills of the Sierra Nevada Mountains, usually along stream beds in alluvial fans. There are no active mining operations within five miles of the Covered Lands.

4.10.2 No Action Alternative

This section summarizes the potential effects to land use associated with the No Action Alternative. As discussed in Section 2.3.2, the No Action Alternative assumes that the HCP would not be implemented, the proposed Incidental Take Permit (ITP) would not be issued, and the Covered Activities for the Maricopa Sun Solar complex would not occur. The 5,784.3 acres identified as the Permit Area would likely remain as unproductive agricultural land, the 1,894.4 acres identified as Conservation Sites would not be permanently conserved, and the proposed Conservation Management Plan would not be implemented. However, the land could be converted to another use, including commercial, industrial, mining or energy production (solar or wind turbines) if another project were proposed. Roadways, access areas, solar panels, and any associated infrastructure and buildings would not be constructed for the Proposed Action.

4.10.2.1 Solar Areas

Construction Phase

Within the 3,798.3-acre Solar Area, no development would occur under the No Action Alternative. Existing, inactive and active mining operations could remain unchanged, although additional mining operations could be proposed. Should other mining or mineral extraction projects be proposed in the Covered Lands, they would require separate resource analyses through Kern County, as well as State agencies. No effects to mineral resources would occur as a result of the Proposed Action.

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Operations Phase

Within the 3,798.3-acre Solar Area, no development would occur under the No Action Alternative. Existing, inactive and active mining operations could remain unchanged, although additional mining operations or other project could be proposed in the 20-to-30-year period in which operations are anticipated. Should other mining or mineral extraction projects be proposed in the Covered Lands, they would require separate resource analyses through Kern County, as well as State agencies. No effects to mineral resources would occur as a result of the Proposed Action. .

4.10.2.2 Conservation Areas

Construction Phase

Within the approximate 1,894.3-acre Conservation Area, no development would occur under the No Action Alternative, although mineral extraction could occur if another project were proposed. Mining or mineral extraction could also be affected by another, unrelated project (such as an industrial site) were proposed. Existing, inactive and active mining operations would remain unchanged and mineral resources would be unaffected by this Project in the Covered lands under the No Action Alternative. No effects to mineral resources would occur as a result of the proposed Project.

Operations Phase

Within the 3,798.3-acre Solar Area, no development would occur as a result of the Project under the No Action Alternative. Existing, inactive and active mining operations would remain unchanged and mineral resources would be unaffected in the Covered lands under the No Action Alternative unless another project is proposed in the Covered Lands. A minimal effect would occur.

4.10.2.3 Mitigation Measures

There are no mitigation measures imposed under the No Action Alternative.

4.10.2.4 Cumulative Effect

The geographic scope for considering cumulative effects on mineral resources includes the extent of Kern County because mineral resources, especially petroleum, are a major economic component of the County as a whole. As such, effects on mineral resources anywhere in the County combined with the proposed project could result in a cumulative effect on countywide mineral resources.

The Proposed Action would avoid effects on existing wells in the Covered Lands by maintaining a 10-foot buffer from the existing (closed) wells on site. The effects of the Proposed Action

could combine with other solar projects in the area in the future. Although the lifespan of the Proposed Action and other projects is expected to be 20-30 years, a project design feature includes an area for use as a potential drill site to allow for surface right-of-way to mineral rights holders. Combined effects on mineral resources would not result in the loss of availability of a known mineral resource. Mitigation Measures for the proposed Project include a provision for the Project Operator or its successor-in-interest to locate of a maximum of five separate, 10-acre drill site areas per section on specific parcels in the Covered Lands, and to allow routes of ingress and egress to each of these drill sites. The drilling areas will be located in such a manner as to allow complete and efficient access to, and the exploration and/or extraction of, underlying oil reserves or other minerals, with the total acreage of drilling areas limited to 50 acres per 640-acre section. The agreement to provide continued ingress and egress to and from the sites is specific to the Proposed Action. Other agreements would be required if the Proposed Action did not occur but other, similar projects were proposed in the future.

Cumulative effects to mineral resources would occur if the cumulative projects would result in the loss of oil or aggregate mineral resources. Some of the cumulative projects may occur within or near existing oil fields, as well as sand and gravel operations. However, where these resources have substantial remnant supplies, none of the cumulative projects would preclude continued extraction or production of these resources. Additionally, the nature of the solar development would not preclude access to a Resource Management area as delineated on the Kern County General Plan map. Effects on mineral resources would not be cumulatively considerable.

Under the No Action Alternative, the project would not be built. It is likely that the area would remain as unproductive agricultural land unless a reliable source of water became available. Other projects proposed in the six-mile radius surrounding the project include 695 acres of solar projects, 5,830 acres of agricultural land, approximately 48 acres of cellular towers, as well as approximately 77 acres of lands being rezoned (primarily residential lands under consideration for other residential density or similar changes), and another approximately 614 acres of miscellaneous and other uses. Cumulatively, coordination with agencies, including Kern County, for each these projects will result in few affects to mineral extraction. Individual projects will require environmental review, and would potentially include permitting procedures and mitigation measures intended to allow continued access to minerals for extraction within the project areas.

4.10.3 Proposed HCP Alternative

This section summarizes the potential effects to mineral resources under Proposed HCP Alternative. Under this Alternative, the approximate 5,784-acre Covered Lands would be developed, with 3,798.3 acres to include the Solar Sites, and 1,894.4 acres to be established as the Conservation Areas.

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4.10.3.1 Solar Areas

Construction Phase

One Site, 5-S, includes three plugged wells. Plugged and/or abandoned wells located within the Covered Lands would be inspected and tested for leakage prior to construction activities, and remedial operations would be performed if necessary under Mitigation Measure MM 4.7-1. Additionally, the Proposed Action would provide surface access areas in facility design that would allow for surface rights of entry to and use of the designated oil area. A minimal effect would occur.

Operations Phase

Surface access to oil and other minerals would continue throughout the operations phase on the Solar Sites. In accordance with a mitigation measure (MM 4.9-2) intended to protect subsurface mineral resources, during maintenance and decommissioning activities, resources that may lie beneath the surface will not be disturbed or depleted). A minimal effect would occur.

4.10.3.2 Conservation Areas

Construction Phase

Within the approximate 1,894.3-acre Conservation Area, there are no plugged or abandoned wells. Additionally, the Proposed Action would provide surface access areas in facility design that would allow for surface rights of entry to and use of any designated oil areas within the Conservation Areas. A minimal effect would occur to lands within the Conservation Areas as a result of the Project.

Operations Phase

Surface access to oil and other minerals would continue throughout the operations phase on the Solar Sites. During maintenance and decommissioning activities, resources that may lie beneath the surface will not be disturbed or depleted in accordance with Mitigation Measure MM 4.9-2, except as outlined in MM 4.10-1a through 4.10-3d, as agreed to in the 2010 Maricopa Sun Solar Complex EIR (Kern County 2010). A minimal effect would occur to lands within the Conservation Areas as a result of the Proposed Action. However, should mining occur within the Conservation Sites 1-C, 9-C, and/or 10-C in the future, lands could be affected by ingress and egress, and by mining operations on the site.

4.10.3.3 Mitigation Measures

The following mitigation measures will be required, except that MM 4.7-1 is required by DOGGR.

MM 4.7-1: found in Section 4.7, Hazardous Materials requires inspection and testing of capped or abandoned wells within the Covered Lands. The plugged and/or abandoned wells located within the project boundaries shall be inspected and tested for leakage prior to construction activities. Remedial operations will be performed if necessary. The well locations shall be recorded on all future maps of the project. A copy of the map shall be submitted to DOGGR. In the event that other abandoned or unrecorded wells are uncovered or damaged during excavation or grading activities, remedial plugging operations may be required. DOGGR shall be contacted for requirements and approval, and copies of said approvals shall be submitted to the Kern County Planning and Community Development Department.

MM 4.9-2: found in Section 4.9 Land Use, requires a decommissioning plan. Prior to issuance of any building permit, the project operator will provide a decommission plan for review and approval by the Kern County Engineering, Surveying, and Permit Services Department or a County-contracted consulting firm at a cost to be borne by the project operator. The decommission plan will factor in the cost to remove the solar panels and support structures, replace disturbed soils from removal of support structures, and control fugitive dust on the remaining vacant land. Salvage value for the solar panels and support structures will be included in the financial assurance calculations. This mitigation measure will be in effect only when/if the project operator is incapable of performing the work or when Kern County would be required to hire an independent contractor to perform the decommission work. In addition to submitting a decommission plan, the project operator will post or establish and maintain with Kern County financial assurances related to the deconstruction of the site as identified on the approved decommission plan in the event that at any point in time the project manager determines that he/she cannot undertake the decommissioning process as outlined.

MM 4.10-1a: For Solar Site 2-S, Solar Site 3-S, Solar Site 4-S, Site 6, Site 7-S, and Solar Site 15-6, (see Figure 2-2 for Site Locations): The Project Operator or its successor-in-interest (“Project Operator”) shall reach a written agreement with Vintage Production California LLC or its successor-in-interest (“Vintage”) as to the location of a maximum of five separate 10-acre drill site areas per section (hereinafter “Drilling Areas”) on these parcels and routes of ingress and egress thereto. The Drilling Areas shall be located in such a manner as to allow complete and efficient access to, and the exploration and/or extraction of, underlying oil reserves or other minerals. The total acreage of Drilling Areas shall not exceed 50 acres per 640-acre section.

MM 4.10-1b: The Project Operator shall record or cause to be recorded easements or other documents confirming Vintage’s interest in the Drilling Areas and its right of ingress and egress to each drill site.

MM 4.10-1c: Evidence of Vintage’s written agreement with the Project Operator as to the location of the Drilling Areas and the easements or other documents confirming Vintage’s interest in the Drilling Areas and right of access to each drill site shall be submitted by Project

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Operator to the Planning and Community Development Department for verification prior to final site plan approval and the issuance of any grading or building permits for the development of solar facilities on project sites.

MM 4.10-1d: Should an alternative agreement to part a) and/or b) above, be reached between Vintage and the Project Operator, written documentation shall be submitted by Project Operator to the Planning and Community Development Department for verification prior to final site plan approval and the issuance of any grading or building permits for the development of solar facilities on project sites.

MM 4.10-2a: For Conservation Site 1-C, Solar Site 5-S, Conservation Site 9-C, Conservation Site 10-C, (see Figure 2-2 for Site Locations): The Project Operator shall consult with Vintage regarding the number, location, and size of the Drilling Areas for these specified parcels and access to each of the Drilling Areas. The Project Operator shall reach a written agreement with Vintage as to the number, location, and size of the Drilling Areas on these specified parcels and routes of ingress and egress thereto. The Drilling Areas shall be located in such a manner as to allow complete and efficient access to, and the exploration and/or extraction of, underlying oil reserves or other minerals.

MM 4.10-2b: The Project Operator shall record or cause to be recorded easements or other documents confirming Vintage's interest in the Drilling Areas and its right of ingress and egress to each drill site.

MM 4.10-2c: Evidence of Vintage's written agreement with the Project Operator as to the location of the Drilling Areas and the easements or other documents confirming Vintage's interest in the Drilling Areas and right of access to each drill site shall be submitted by Project Operator to the Planning and Community Development Department for verification prior to final site plan approval and the issuance of any grading or building permits for the development of solar facilities on project sites.

MM 4.10-2d: Should an alternative agreement to part a) and/or b) above, be reached between Vintage and the Project Operator, written documentation shall be submitted by Project Operator to the Planning and Community Development Department for verification prior to final site plan approval and the issuance of any grading or building permits for the development of solar facilities on project sites.

MM 4.10-3a: For sites upon which Aera Energy LLC ("Aera") owns an interest in the minerals, The Project Operator or its successor-in-interest ("Project Operator"), shall reach a written agreement with Aera or its successor-in-interest as to the location or a maximum of five separate 10-acres drill site areas per section (hereinafter, "Drilling Areas") on these parcels and routes of ingress and egress thereto. The Drilling Areas shall be located in such a manner as to allow

complete and efficient access to, and the exploration and/or extraction of, underlying oil reserves or other minerals. The total acreage of Drilling Areas shall not exceed 50 acres per 640-acre section.

MM 4.10-3b: The Project Operator shall record or cause to be recorded easements or other documents confirming Area's interest in the Drilling Areas and its right of ingress and egress to each drill site.

MM 4.10-3c: Evidence of Vintage's written agreement with the Project Operator that the solar panel configuration and associated equipment will allow for sufficient placement of seismic geophones and access for vibrator buggies, along with Aera's written agreement as to the location of the Drilling Areas and the easements or other documents confirming Aera's interest in the Drilling Areas as well as, sufficient pipeline and power line corridors from the drill sites to a point exiting the property and right of access to each drill site, shall be submitted by Project Operator to the Planning and Community Development Department for verification prior to final site plan approval and the issuance of any grading or building permits for the development of solar facilities on project sites.

MM 4.10-3d: Should an alternative agreement to part a) and/or b) above, be reached between Aera and the Project Operator, written documentation shall be submitted by Project Operator to the Planning and Community Development Department for verification prior to final site plan approval and the issuance of any grading or building permits for the development of solar facilities on project sites.

4.10.3.4 Cumulative Effect

The geographic scope for considering cumulative effects on mineral resources includes the extent of Kern County because mineral resources, especially petroleum, are a major economic component of the County as a whole. As such, effects on mineral resources anywhere in the County combined with the proposed project could result in a cumulative effect on countywide mineral resources.

The Proposed Action would avoid effects on existing wells in the Covered Lands by maintaining a 10-foot buffer from the existing (closed) wells on site. The effects of the Proposed Action could combine with other solar projects in the area in the future. Although the lifespan of the Proposed Action and other projects are expected to be 20-30 years, a project design feature includes an area for use as a potential drill site to allow for surface right-of-way to mineral rights holders. Combined effects on mineral resources would not result in the loss of availability of a known mineral resource. Mitigation Measures for the Proposed Action include a provision for the Project Operator or its successor-in-interest to locate of a maximum of five separate, 10-acre drill site areas per section on specific parcels, and to allow routes of ingress and egress to each of these drill sites. The drilling areas will be located in such a manner as to allow complete and

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efficient access to, and the exploration and/or extraction of, underlying oil reserves or other minerals, with the total acreage of drilling areas limited to 50 acres per 640-acre section.

Cumulative effects to mineral resources would occur if the cumulative projects would result in the loss of oil or aggregate mineral resources. Some of the cumulative projects may occur within or near existing oil fields, as well as sand and gravel operations. However, where these resources have substantial remnant supplies, none of the cumulative projects would preclude continued extraction or production of these resources. Additionally, the nature of the solar development would not preclude access to a Resource Management area as delineated on the Kern County General Plan map. Effects on mineral resources would not be cumulatively considerable.

4.10.4 Reduced Permit Area Alternative

This section summarizes the potential effects to mineral resources under Proposed HCP Alternative. Under this Alternative, the approximate 3,682 acres of the Reduced Permit Area of Covered Lands would be developed, with 2,343.7 acres to include the Solar Sites, and 647.7 acres to be established as the Conservation Areas.

4.10.4.1 Solar Areas

Construction Phase

One Site, 5-S, includes three plugged wells. Plugged and/or abandoned wells located within the Covered Lands would be inspected and tested for leakage prior to construction activities, and remedial operations would be performed if necessary under Mitigation Measure MM 4.7-1. Additionally, the Proposed Action would provide surface access areas in facility design that would allow for surface rights of entry to and use of the designated oil area. A minimal effect would occur.

Operations Phase

Surface access to oil and other minerals would continue throughout the operations phase on the Solar Sites. In accordance with a mitigation measure (MM 4.9-2) intended to protect subsurface mineral resources, during maintenance and decommissioning activities, resources that may lie beneath the surface will not be disturbed or depleted. A minimal effect would occur.

4.10.4.2 Conservation Areas

Construction Phase

Within the approximate 1,894.3-acre Conservation Area, there are no plugged or abandoned wells. Additionally, the Proposed Action would provide surface access areas in facility design

that would allow for surface rights of entry to and use of the designated oil area. A minimal effect would occur.

Operations Phase

Surface access to oil and other minerals would continue throughout the operations phase on the Solar Sites. During maintenance and decommissioning activities, resources that may lie beneath the surface will not be disturbed or depleted in accordance with Mitigation Measure MM 4.9-2. A minimal effect would occur.

4.10.4.3 Mitigation Measures

MM 4.7-1: found in Section 4.7, Hazardous Materials requires inspection and testing of capped or abandoned wells within the Covered Lands.

MM 4.9-2: found in Section 4.9 Land Use, requires a decommissioning plan.

MM 4.10-1a through 4.10-3d, which restrict activities that, during maintenance and decommissioning activities, might otherwise disturb or deplete resources that may lie beneath the surface.

4.10.4.4 Cumulative Effect

The geographic scope for considering cumulative effects on mineral resources includes the extent of Kern County because mineral resources, especially petroleum, are a major economic component of the County as a whole. As such, effects on mineral resources anywhere in the County combined with the proposed project could result in a cumulative effect on Countywide mineral resources.

The Proposed Action would avoid effects on existing wells in the Covered Lands by maintaining a 10-foot buffer from the existing wells on site. The effects of the Proposed Action could combine with other solar projects in the area in the future. Although the lifespan of the proposed Project and other projects are expected to be 20-30 years, a project design feature includes an area for use as a potential drill site to allow for surface right-of-way to mineral rights holders. Combined effects on mineral resources would not result in the loss of availability of a known mineral resource. Mitigation Measures for the Proposed Action include a provision for the Project Operator or its successor-in-interest to locate of a maximum of five separate, 10-acre drill site areas per section on specific parcels, and to allow routes of ingress and egress to each of these drill sites. The drilling areas will be located in such a manner as to allow complete and efficient access to, and the exploration and/or extraction of, underlying oil reserves or other minerals, with the total acreage of drilling areas limited to 50 acres per 640-acre section. These protections would not necessarily be included if the Proposed Action did not occur but other, similar projects were proposed in the future.

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Cumulative effects to mineral resources would occur if the cumulative projects would result in the loss of oil or aggregate mineral resources. Some of the cumulative projects may occur within or near existing oil fields, as well as sand and gravel operations. However, where these resources have substantial remnant supplies, none of the cumulative projects would preclude continued extraction or production of these resources. Additionally, the nature of the solar development would not preclude access to a Resource Management area as delineated on the Kern County General Plan map. Effects on mineral resources would not be cumulatively considerable.

4.10.5 Comparison of Alternatives

A summary of results comparing the No Action Alternative to the Proposed HCP Alternative and Reduced Permit Area Alternative is shown Table 4.10-1. Each of the potential effect areas which includes construction and operations phases, and cumulative effect is measured with a less, more, or similar effect ranking as compared to the No Action Alternative.

Table 4.10-1
Comparison of Alternatives to the No Action Alternative

Potential Effect	No Action/No HCP	Proposed HCP	Reduced Permit Area
Solar Panel Areas			
Construction Phase	-	Similar	Similar
Operations Phase	-	Similar	Similar
Conservation Areas			
Construction Phase	-	Similar	Similar
Operations Phase	-	Similar	Similar
Cumulative Effect	-	Similar	Similar

Source: Kern County, 2010.

There are no active mining sites within the Covered Lands, and there would be no changes in the mining or surface or subsurface minerals under the No Action Alternative unless mining exploration and/or activities were proposed in the future. No mitigation measures associated with the Project would need implementation, and these resources would not be affected.

Under the Proposed HCP Alternative and Reduced Permit Area Alternative, three capped mines are located within the Covered Lands. A project design feature includes an area for use as a potential drill site to allow for surface right-of-way to mineral rights holders. Combined effects on mineral resources would not result in the loss of availability of a known mineral resource. With the implementation of mitigation measures, mineral resources would not be affected under any of the Alternatives during the construction, operations, or decommissioning phases of the project. With the implementation of mitigation measures, a minimal effect would occur.

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Combined effects from the Proposed Action would not result in the loss of availability of a known mineral resource. Cumulative effects to mineral resources would occur if the cumulative projects would result in the loss of oil or aggregate mineral resources. Some of the cumulative projects may occur within or near existing oil fields, as well as sand and gravel operations. However, where these resources have substantial remnant supplies, none of the cumulative projects would preclude continued extraction or production of these resources. The nature of the solar development would not preclude access to a Resource Management area as delineated on the Kern County General Plan map. Effects on mineral resources would not be cumulatively considerable.

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4.11 PUBLIC SERVICES

4.11.1 Overview

The potential environmental consequences of the alternatives on public services are described in this section compared to existing conditions when the Notice of Intent was issued.

4.11.2 Methodology

This independent public services analysis references the Notice of Preparation for the EIR (Kern County 2010) prepared for solar development of an area included in the Draft HCP. Schools, parks, and “other public facilities” have been eliminated from the analysis of public services effects (it found that because the project included no temporary or permanent residents it would have no substantial effects on these public services). It retained the following Threshold of Significance from the County of Kern Environmental checklist:

(Would the project):

- Result in substantial adverse physical effects associated with the provision of new or physically altered governmental facilities; and/or result in the need for new or physically altered governmental facilities, the construction of which could cause significant environmental effects in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services which include:

It is assumed herein that decommissioning materials – solar panels and wiring, asphaltic pavement and concrete rubble -are of sufficient value that they will be recycled for beneficial use, thus requiring no County solid waste disposal services.

For this environmental analysis the environmental consequences of each alternative will be combined for the construction, operation and decommissioning periods of the HCP and its alternatives. This section will, in the absence of any need for other required public services, consider essential fire and sheriff services. The scope of this analysis includes effects upon the need for fire suppression, emergency medical aid, and law enforcement services, not just their related facilities.

4.11.3 No Action Alternative

Under this alternative there would be no construction in the Permit Area, no change in the agricultural land uses in the Permit Area, and no HCP conservation activities in the Area; however, it is conceivable that oil wells might be drilled. There would be, therefore, no need for fire suppression, medical aid or law enforcement services incremental to those now provided for the Area and no environmental consequences of the alternative.

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4.11.3.1 Cumulative Effect

Since this alternative creates no direct or indirect environmental effects; it has no cumulative public services consequences.

4.11.4 Proposed HCP Alternative

4.11.4.1 Fire and Medical Aid Services

According to the Kern County Fire Department's (KCFD's) Wildland Fire Management Plan, Air & Wildland Division, the program is within the Western Kern and Mt. Pinos Communities Fire Plan Management Areas. The program area consists of uncultivated agricultural land, without any significant native or ruderal vegetation. The surrounding land is primarily uncultivated agricultural land.

Fire protection facilities requirements are based on the number of residents and workers in the KCFD primary service area. Service demand is primarily tied to population, not building size, because emergency medical calls typically make up the majority of responses provided by the County fire department. As the number of residents and workers increases, so does the number of emergency medical calls involving personnel, equipment and transport.

Since the HCP will include the development of a Solar Site containing solar panels and an O&M building, but no residential structures, no residents will occupy the Covered Lands.

The onsite assembly and construction workforce is expected to reach a peak of approximately 200 workers per square mile. Development may occur over an eight to 10 year period. It is unlikely that all Solar Sites within the program will be built simultaneously, although it is feasible that several might be developed at the same time. The presence of construction workers will be temporary, lasting about 12 to 18 months per square mile. During operation, the project will require approximately a minimum of seven onsite employees. The HCP and its construction and operational personnel will result in a demand for fire protection services to accommodate fire suppression and emergency medical calls. The Movement Corridors and Conservation Sites will not create an incremental fire hazard.

The Kern County Fire Station 21 provides primary service. It is located at 303 North 10th Street in the City of Taft, approximately 7 and 32 miles to the west of the respective nearest and farthest Solar Sites.

The design will include emergency access and other safety features and plans for fire protection. Construction and operation of the project will be subject to the provisions of the Uniform Fire Code and County amendments; Titles 19, 22 and 27 of the California Safety Code Regulations; the Kern County Ordinance Code; and the National Fire Prevention Association Standards. The construction and operation will not result in increased risk of wildfires because the Permit Area

and the surrounding area largely consist of uncultivated agricultural land, without significant native or ruderal vegetation. Regardless, the Proposed Action must comply with all applicable wildland fire management plans and policies established by CAL FIRE and the KCFD.

4.11.4.2 Sheriff Services

The Kern County Sheriff's Office provides basic law enforcement services in the unincorporated areas of the county. It provides primary police protection for the Permit Area and Covered Lands. The Sheriff's Taft Substation is located approximately 8 to 24 miles northwest of the respective nearest and farthest Solar Sites.

Both residents and workers in unincorporated portions of the county benefit from patrol and investigation services provided by the Kern County Sheriff's Office. Therefore, the demand for Sheriff patrol and investigation is based on the county's combined unincorporated residential and worker populations. The proposed number of employees required by the HCP is not anticipated to result in substantial increased demand for Sheriff services.

Although service demands per employee are less than service demands per resident, construction and implementation of the project could increase service needs for the Kern County Sheriff's Office. The project may attract vandals or present other security risks, and potentially increase traffic. Onsite security will be provided, and access will be limited to the areas surrounding the Solar Sites and Conservation Sites during construction and operation, thereby minimizing the need for Sheriff surveillance additional to the response service now available. Project personnel commuting to the construction sites via roads and highways will be required to adhere to all federal and state traffic laws. The additional volume of traffic associated with workers commuting to the Solar Sites during construction will be temporary and is not expected to adversely affect law enforcement's ability to patrol the roads and highways.

4.11.4.3 Mitigation Measures

The following mitigation measures will reduce potential effects to a minimal level:

MM 4.11-1: The applicant shall develop and implement a fire safety plan for use during construction and operation. The applicant shall submit the plan, along with maps of the project site and access roads, to the KCFD for review and approval prior to the issuance of any building permit or grading permits. The fire safety plan shall contain notification procedures and emergency fire precautions including, but not limited to, the following:

- a. All internal combustion engines, stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order;

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- b. Trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. These vehicle types shall maintain their factory-installed (type) muffler in good condition;
- c. Fire rules shall be posted on the project bulletin board at the contractor's field office and areas visible to employees;
- d. Equipment parking areas and small stationary engine sites shall be cleared of all extraneous flammable materials;
- e. Personnel shall be trained in the practices of the fire safety plan relevant to their duties. Construction and maintenance personnel shall be trained and equipped to extinguish small fires in order to prevent them from growing into more serious threats; and
- f. The applicant shall make an effort to restrict use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to outside the official fire season. When the above tools are used, water tanks equipped with hoses, fire rakes, and axes shall be easily accessible to personnel.

MM 4.11-2: The applicant shall pay the County for impacts to countywide public protection, sheriff patrol and investigation, and fire services at a rate of \$29.59 per 1,000 square feet of covered ground for the facility and related onsite structures for the entire covered area of the project. The total amount shall be divided by the number of years of operation and paid on a yearly basis. The annual amount shall be based on the square footage of solar site ground covered by April 30 of each year, if completed in phases. The amount shall be paid for each and all years of operation. The fee shall be paid to the Kern County auditor/controller by April 30 of each calendar year.

MM 4.11-3: Written verification of ownership of the project shall be submitted to the Kern County Planning and Community Department by April 15 of each calendar year. If the project is sold to a city, county, or utility company that pays assessed taxes that equal less than \$1,000 per MW per year, then they shall pay those taxes plus an amount necessary to equal the equivalent of \$1,000 per MW. The amount shall be paid for all years of operation. The fee shall be paid to the Kern County Auditor/Controller by April 30 of each calendar year.

4.11.4.4 Cumulative Effect

The cumulative effect area considered for public services is southwest Kern County. The sporadic agricultural and resource development of the Covered Lands, and the agricultural and resource development of the balance of southwest Kern County's resources have created no substantial public service effects in excess of existing public services (fire, sheriff) capabilities.

There is no readily available, documented, mitigated or unmitigated, predictive development in southwest Kern County which would create public services environmental consequences. The HCP Alternative, as mitigated, was determined to create no substantial public services-related environmental consequences. The HCP Alternative therefore creates no significant cumulative public services-related effects.

4.11.5 Reduced Permit Area Alternative

This alternative would provide for a reduction of the Permit Area from 5,784.3 acres to 3,682 acres by removing from the Project: Sites 4-S/4-M (652.5 acres), 6-S (320.9 acres), 7-S/7-M (481.2 acres), and 17-C (647.7 acres), 1,696 acres, 45% of the HCP Solar Sites area. The lands excluded from the Permit Area would likely remain vacant and would continue to be disked on a regular basis for weed control. If water became economically available, these lands would likely be converted to active agricultural production.

The methodology and database for analysis of this alternative are the same as those for the HCP Alternative. They will not, however, be repeated herein but will, rather, textually analyze any public services effects which would differ because of changes from the HCP Alternative.

4.11.5.1 Fire and Medical Aid Services; Sheriff Services

The total Solar Development Footprint of this Alternative is reduced from 3,798 acres to 1,696 acres, a reduction of 55%.

Since the primary need for fire/medical aid/sheriff services is directly related to the numbers of employees involved in their travel to and from the project area and the materials transport to the Area, construction of the Solar Site facilities, the environmental consequences will be proportionately reduced to 45% of those of the HCP Alternative.

The same compliance with County regulations, and implementation of the same mitigation measures, would be required for this alternative. As with the HCP Alternative, such compliance and mitigation results in the conclusion that the alternative creates no environmental consequences.

4.11.5.2 Cumulative Effect

The same analyses for the No Action Alternative and Proposed HCP Alternative apply to this alternative but with somewhat lesser strength: the reduction of the Permit Area creates less cumulative public services-related effects than the HCP Alternative.

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4.11.6 Comparison of Alternatives

There would be no changes in public services required under the No Action Alternative. No mitigation measures would need implementation, and these resources would not be affected.

Under the Proposed HCP Alternative and Reduced Permit Area Alternative, there would be an increase in demand for Fire/Medical and Sheriff services; however, with the implementation of mitigation measures, a minimal effect would occur.

Under the Reduced Permit Area Alternative, the potential effects on Fire/Medical and Sheriff services would be similar to the Proposed HCP alternative, but less. Potential effects would be mitigated to a minimal level.

A summary of the relative effects resulting from the proposed HCP Alternative and the Reduced Permit Alternative compared to the No Action Alternative is provided in Table 4.11-1. Comparisons are ranked at the project level and at the cumulative level having an overall effect that is more, less, or similar.

Table 4.11-1
Comparison of Alternatives to the No Action Alternative

Potential Effect	No Action	Proposed HCP	Reduced Permit Area
Fire and Medical Services	—	More	More
Sheriff Services	—	More	More
Cumulative Effect	—	More	More

4.12 TRAFFIC AND TRANSPORTATION

4.12.1 Overview

The potential traffic and transportation effects of the alternatives are described in this section and compared to existing conditions when the Notice of Intent was issued.

4.12.2 Methodology

The independent analysis in this section is based in part upon data from a Notice of Preparation and a certified EIR for the Maricopa Sun Solar Complex EIR (Kern County 2010) and upon data in Appendix H to that EIR which contained a Trip Generation memorandum. (See Chapter 8 References of this EIS for document identification and availability.)

The referenced Notice of Preparation for the EIR determined that, because of its project location and project-pertinent/project adjacent traffic and transportation facilities, the only applicable effect (environmental consequence) threshold of significance was:

(Will the project:)

- Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity on the street system (i.e., result in a substantial increase in either the number of vehicle trips, or the volume-to-capacity ratio on roads, or congestion at intersections)?

The reduced number of Solar Sites, and solar panels, in the Proposed Action analyzed in this EIS compared to the EIR-evaluated solar project make this Notice of Preparation threshold selection appropriate for independent HCP traffic and transportation evaluation.

4.12.3 No Action Alternative

This section summarizes the potential traffic/transportation issues and environmental consequences associated with the No Action Alternative. It assumes, as defined in Section 2.0 that the HCP would not be implemented, the proposed Incidental Take Permit (ITP) would not be issued, and the covered activities for the Maricopa Sun Solar complex would not occur. The 5,784.3 acres identified as the Permit Area would likely remain vacant, the 1,894.4 acres identified as Conservation Sites would not be permanently conserved, and the proposed Conservation Management Plan would not be implemented. Agricultural activities and oil well drilling might occur in some parts of the permit area.

There would be no change in existing land uses and related traffic loadings on the road (street or highway) facilities serving the Covered Lands and, therefore, no environmental consequences of this alternative.

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4.12.3.1 Cumulative Effect

Since the alternative creates no direct or indirect environmental effects it has no cumulative traffic/transportation consequence.

4.12.4 Proposed HCP Alternative

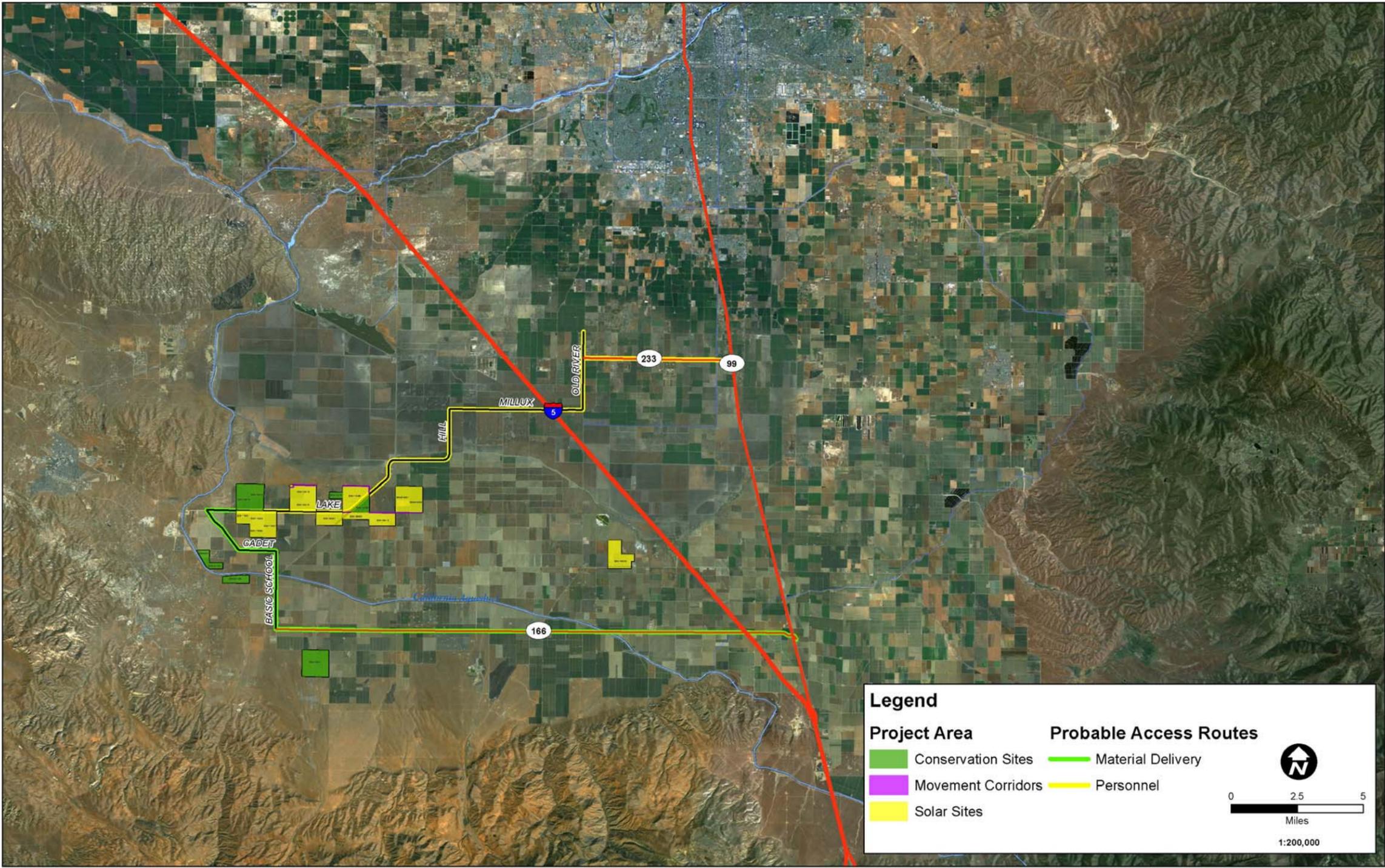
The Proposed Action is to develop and maintain a PV solar complex and an HCP for a Solar Complex for which Incidental Take Permit (ITP) coverage under the FESA is necessary. Activities included in the HCP (Covered Activities) allow for: (1) pre-construction, construction, operation and maintenance, and decommissioning activities within Solar Sites; (2) management and maintenance activities associated with Movement Corridors and Conservation Sites, including monitoring and reporting activities; and (3) activities associated with implementation of the conservation program specified in this HCP.

The establishment of conservation easements on Conservation Sites and the initiation of management actions on those sites will be phased to coincide with the development of Solar Sites.

Roadways in and around the Covers lands are described in Section 2.0 of this EIS. Figure 4.12-1 depicts the road and highway system serving the HCP Permit Area, highlighting likely access routes.

4.12.4.1 Construction and Decommissioning

It is anticipated that a 640-acre Solar Site (1 square mile) could be constructed over a 12 to 18 month period, with a peak construction workforce of 200 people. Construction would be expected to generally occur during the day, Monday through Friday. The development is expected to rely mostly on Kern County's skilled labor pool for its construction workforce and it is anticipated that construction workers would come from the city of Bakersfield.



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WORKERS AND MATERIALS ROUTES
 MARICOPA SUN SOLAR LLC

Figure
 4.12-1

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The primary construction materials delivery routes are anticipated to be I-5 and Interstate 99. Workforce traffic will originate from Bakersfield, northeast of the project site. Likely personnel travel routes are depicted on Figure 4.12-1 as are probable truck delivery routes.

Existing County and State roads serving the project construction areas (the proposed Solar Sites) are far below acceptable (LOS C) levels. Table 4.12-1's projected construction trips, based on the conservative assumption that all Solar Sites are being constructed at one time, estimates trip generation at such low rates that current LOS levels will be little affected.

Table 4.12-1
Peak Project-Level Construction Trip Generation

Time	Directional Distribution %		In	Out	Total Trips (per Square Mile)	Project-Level Trips (5.93 Square Miles)
	In	Out				
5:00 a.m. to 9:00 a.m.	52	11	114	24	138	818
2:00 p.m. to 6:00 p.m.	14	49	30	106	136	806
AM Peak Hour	52	11	28	6	34	202
PM Peak Hour	14	49	8	28	36	214

Decommissioning activities, and timespan, are estimated to occur over the same timespan and to occasion the same material quantity, transport and, most conservatively, the same personnel requirements as construction, thus, the same traffic-related environmental consequences.

The HCP will require approval of an amendment to the Circulation Element of the Kern County General Plan (GPA 5, Map 158 and GPA 1, Map 159) to eliminate future road reservations for midsection lines in Sections 19, 21, 23, 25, 26, 27, 29, and 30, T32S, R25E MDB&M and Section 19, T32S, R26E MDB&M. This would allow solar panels to be placed throughout the solar sites, and not require setbacks from road reservations. Elimination of the road reservations at the midsection lines will not result in any increase in the traffic load or capacities of the existing street system. The roadway reservations are currently undeveloped, and the designation of future roadways was intended as a placeholder until detailed development plans for a parcel or section of land were proposed.

In order to ensure that the Permit Area's access roads stay at existing structural/surfacing conditions, mitigation measures must be implemented. They will be required by the County and will reduce the effect of truck trips to a minimal level.

4.12.4.2 Mitigation Measures

Prior to the issuance of building or grading permits, the County of Kern will require the project operator to submit documentation of the following:

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MM 4.12-1: Prior to the issuance of building or grading permits the project operator shall:

- a. Submit engineering drawings of any proposed access road design for the review and approval of the Kern County Roads Department.
- b. Obtain an encroachment permit from the Kern County Roads Department for applicable roads in the Kern County Road Maintenance System.
- c. Enter into a secured agreement with Kern County to ensure that any County roads that are demonstrably damaged by project-related activities are promptly repaired and, if necessary, paved, slurry-sealed, or reconstructed as per requirements of the state and or Kern County.
- d. Identify the roads to be used during construction, and be responsible to repair any damage to non-County maintained roads that may result from construction activities; submit to the Kern County Planning and Community Development Department a preconstruction video log and inspection of roadway conditions for those roads to be used during construction.

MM 4.12-2: Subsequent to completion of construction and to decommissioning, submit post-construction/post decommissioning video log and inspection reports to the County in DVD format. The County, in consultation with the HCP's engineer, shall determine the extent of remediation required, if any.

Given the HCP Alternative's limited construction and decommissioning traffic loadings on the roads and highways serving it, compliance with County regulations and implementation of the listed mitigation measures, the HCP Alternative will have no significant construction or decommissioning environmental consequences.

4.12.4.3 Operations

Solar module cleaning will require a total of 4,412 truck trips per year. This averages out to approximately 8 trips per day.

The proposed project will operate during daylight hours only, and therefore, it is assumed that peak traffic periods would correspond to the traditional peak hours from 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. Cleaning is expected to generally occur during the day, Monday through Friday. The water truck trips for cleaning are anticipated to be spread over the course of an eight-hour work day; this trip frequency poses no potential for traffic congestion on the area's lightly traveled roads. Additional operations-related trips (including maintenance trips) at the project site will be infrequent and minimal. Project operational traffic is anticipated to be local in nature. Based on the location of the available water wells proposed to provide water for panel

cleaning, the water trucks will travel approximately 5 miles between wells and the solar facilities.

4.12.4.4 Cumulative Effect

The area evaluated for traffic and transportation effects is southwest Kern County.

The sporadic agricultural development of the Covered Lands, the agricultural and resource development of the balance of southwest Kern County, and Statewide influences on traffic loadings on HCP-serving sections of State Route 99 and I-5, have created no significant traffic effects in excess of designed levels of service.

There is no readily available, documented, mitigated or unmitigated, predictive development in southwest Kern County which would create traffic-related environmental consequences for the County's road system serving the Project Area. Statewide development creating such traffic-related environmental consequences on State Routes 99 and I-5 is too speculative to include in this analysis.

The HCP Alternative, as mitigated, was determined to create no significant environmental consequences.

The HCP Alternative therefore creates no significant cumulative traffic-related environmental consequences.

4.12.5 Reduced Permit Area Alternative

This Alternative would provide for a reduction of Permit Area from 5,784.3 acres to 3,682 acres by removing from the Project: Sites 4-S/4-M (652.5 acres), 6-S (320.9 acres), 7-S/7-M (481.2 acres), and 17-C (647.7 acres), 1,696 acres, 45% of the HCP Solar Sites area. The lands excluded from the Permit Area would likely remain vacant and would continue to be disked on a regular basis for weed control. If water became available, these lands would likely be converted to active agricultural production.

The methodology and database for analysis of this Alternative are the same as those for the HCP Alternative. They will not, however, be repeated herein. This section will, rather, textually analyze any traffic effects which would differ because of changes from the HCP Alternative.

4.12.5.1 Construction and Decommissioning

The 55% reduction in Solar Sites occasioned by this Alternative would correspondingly reduce both the duration of and the estimated daily and hourly traffic volumes involved in implementation of this Alternative. These calculated reductions result from the conservative assumption of the traffic analysis for the HCP Alternative – that all Solar Sites are being constructed (and decommissioned) concurrently.

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Construction loading effects on roads and highways would likewise be reduced by 55%.

4.12.5.2 Mitigation Measures

The same compliance with County regulations, and implementation of the same mitigation measures, would be required for this Alternative.

As with the HCP Alternative, such compliance and implementation coupled with existing minimal traffic volumes on roads and highways serving the Covered Lands and Permit Area, and the minimal daily and hourly traffic volumes generated by Reduced Permit Alternative construction and decommissioning, results in a conclusion that the Alternative creates no environmental consequences.

4.12.5.3 Operations

Anticipated personnel assignments for this alternative are the same as for the HCP Alternative; anticipated maintenance and panel-washing will predictably be 55% less. This alternative, like the HCP Alternative, will thus create no traffic-related environmental consequences.

4.12.5.4 Cumulative Effect

The same analyses described above for the No Action and Proposed HCP Alternative apply to this alternative but with somewhat lesser strength: the reduction of the Permit Area creates less cumulative traffic-related effects than the HCP Alternative.

Therefore, for the reasons described in Section 4.12.4.4, there are no significant traffic-related cumulative environmental consequences from the implementation of this alternative.

4.12.6 Comparison of Alternatives

There would be no changes in traffic or transportation required under the No Action Alternative. No mitigation measures would need implementation.

Under the Proposed HCP Alternative and Reduced Permit Area Alternative, there would be an increase in traffic associated with construction and decommissioning, but not an appreciable increase during operations.

A summary of the relative effects resulting from the proposed HCP Alternative and the Reduced Permit Alternative compared to the No Action Alternative is provided in Table 4.12-2. Comparisons are ranked at the project level and at the cumulative level having an overall effect that is more, less, or similar.

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Table 4.12-2
Comparison of Alternatives to the No Action Alternative

Potential Effect	No Action	Proposed HCP	Reduced Permit Area
Construction and Decommissioning	—	More	More
Operations	—	More	More
Cumulative	—	More	More

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4.13 ENVIRONMENTAL JUSTICE

The analysis of environmental justice considers effects related to socioeconomics and health, and the potential effects of the alternatives on minority and/or low-income populations identified in the vicinity of the Covered Area. As discussed in Section 3.14, the Covered Area is considered concurrent with the Covered Lands with the exception of demographic data pertaining to socioeconomics and environmental justice, which are presented in the context of Kern County.

Environmental justice includes an analysis of four communities in the vicinity of the Covered Area, including unincorporated Maricopa, Taft Heights CDP, South Taft CPD, and the incorporated city of Taft.

4.13.1 Methodology

An overview of impacts to the general population was determined based on a review of resource impacts in Chapter 3 describing, for all alternatives, the nature of the impact, the significance level, the mitigation proposed, and the significance level of residual impacts.

This analysis considers the potential impacts of the Proposed Action on disproportionately minority and/or low-income populations identified in the vicinity of the Covered Area. These populations were compared to data for the “general population,” which is a term used in the CEQ guidance (CEQ 1997). For this analysis, Kern County is used as the comparison population to determine whether effects are disproportionate.

As noted in the demographic data presented in Section 3.13.3.2, Table 3.13-4, Maricopa is the only the community to exceed County poverty rate levels. Maricopa has 12.7% more individuals and 7.7% more families under federal poverty levels than the general population, and therefore is identified as a low-income community for this analysis. The population in Taft Heights, South Taft as well as Taft city, and within Kern County as a whole, do not meet the environmental justice criteria for identifying a low-income population that may be affected by the proposed action.

According to Section 3.13.3.2, Table 3.13-2, which provides a breakdown of self-identified race and ethnicity for Kern County as a whole and the four neighboring communities, none of the four in the vicinity of the Covered Area meet the criteria as being a minority population.

4.13.2 Socioeconomics

The analysis of socioeconomics considered the potential effects of the proposed action on the generation of tax revenue (property and sales) and job creation. This analysis uses the following assumptions to determine a basis upon which to compare revenue, job creation and other benefits from the Proposed Action.

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4.13.2.1 Job Creation

It is estimated that an estimated 200 workers per section, resulting in the creation of 2,800 construction jobs will result from the Proposed Action over the 8- to 10-year construction period. Although these are considered temporary jobs, it is anticipated that each phase of construction would last from 12 to 24 months, depending on the size of the specific facility. Kern County encourages solar developers to hire a minimum of 25% employees from the local labor force, and provides a list of available training programs and employment firms to assist in the local hiring effort.

4.13.2.2 Revenue and other Monetary Benefits

While it is difficult to quantify the revenue generated by the implementation of the Proposed Action, it is anticipated that the project would generate increased property taxes as a result of the cancellation of the Williamson Act land use contracts on the Covered Lands. Although only an estimate, it has been calculated that an additional \$44,600 in potential annual property taxes would be paid on the non-contracted parcels. This equates to an estimated 1.3 million dollars on possible tax revenue that would be paid over the 30-year lifetime of the project.

The project is also required to pay fees to cover county-wide public protection based on the amount of ground covered by the proposed project. This fee is to be paid on an annual basis and would be used by the County to support the Sheriff's Office, County Fire Department and other public safety and protection services. This support would directly and/or indirectly benefit the residence of the four communities in the vicinity of the Covered Area

Other economic benefits within Kern County would include the money to local businesses, governments and households from the construction and operation over the lifetime of the project. While these cannot be quantified, it is expected that millions of dollars of revenue from payroll, from taxable equipment purchases, hospitality and service industry expenditures, etc., would directly and/or indirectly benefit the residents of the four communities in the vicinity of the Covered Area.

4.13.2.3 Health Benefits

After total build out of the project, it is anticipated that electricity generated will reduce the amount of electricity generated using fossil fuels, and therefore result in an offset of 558,794 metric tons of greenhouse gas emissions (GHG).

Additionally, air quality in the area would also improve with the implementation of the proposed project. While agricultural activities are not subject to San Joaquin Valley Air Pollution Control District (Air District) rules for criteria pollutants such as PM 10 or PM 2.5 (fugitive dust), the Proposed Action is subject to compliance with all other Air District rules and regulations. Thus, with the termination of disking and other agricultural activities, and the construction of the

proposed project, it is expected that fugitive dust and criteria pollutants emissions would decrease. The communities in close proximity to this project, as well as Kern County in general, would receive an immediate and direct benefit from the reduction in GHG, fugitive dust, and criteria pollutants.

4.13.3 No Action Alternative

This section summarizes the potential effects associated with the No Action Alternative. Under the No Action Alternative, the HCP would not be implemented, the proposed Incidental Take Permit (ITP) would not be issued, and the covered activities for the Maricopa Sun Solar complex would not occur. The 5,784.3 acres identified as the Solar Sites would likely remain vacant, the 1894.4 acres identified as Conservation Sites would not be permanently conserved, and the proposed Conservation Management Plan would not be implemented. Under this alternative, agricultural activities including grazing or disking, would likely continue.

Under the No Action Alternative, vacant agricultural lands would most likely remain fallow or vacant, while active agricultural lands would remain under production. Uses in and adjacent to the Covered Lands would remain as they are under the No Action Alternative.

As discussed above, Taft, South Taft and Taft Heights do not meet environmental justice criteria to be considered either a minority or low income population. Maricopa is considered a low income population. However, the No Action Alternative maintains the current environmental and socioeconomic conditions. Therefore, there would be no direct or indirect adverse environmental justice effects associated with No Action Alternative.

4.13.4 Proposed HCP Alternative

This Alternative considers activities associated with both the areas where PV solar facilities will be installed and the areas where Movement Corridors and Conservation Areas will be established in the 5,784.3-acre Covered Lands.

Ground disturbance activities associated with preparation and construction and similar activities within the PV facilities sites and the Conservation Areas have the potential to adversely affect communities in the vicinity of the Covered Area. Grubbing of vegetation, grading, paving, and installation of the solar facilities and associated infrastructure will require heavy equipment to grade the surface, or dig beneath the surface of the proposed Solar Sites. Ground-disturbing activities could be subject to project-specific approvals from federal, State, and local jurisdictions, which may require avoidance buffers and monitoring of activities.

As previously noted, much of the Covered Lands have been impacted by agricultural tilling or disking in the past. Agricultural activities are not regulated by the Air District, nor are they subject to local land use approvals or requirements. On the Conservation Areas, disking and

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other ground disturbance will cease, allowing native vegetation and wildlife to become reestablished. Only in areas where reseeded is needed will the ground be disturbed. Under this Alternative, with the compliance of Air District rules and regulations, as well as other local requirements, project-generated emissions from short-term construction activities are anticipated to be minimal, and of less severity than those associated with unregulated agricultural activities. It is likely that communities in the vicinity of the Covered Area would benefit from improved, long-term air quality with the implementation of the Proposed Action.

Operation of the PV solar facilities and Conservation Areas is not likely to result in adverse effects on environmental justice populations. Long-term emissions would be minimal because there will be no emissions associated with the operation of the facility other than occasional maintenance that will require travel to the site. Otherwise, the site will be monitored from a remote location with no onsite emission emitting equipment.

As discussed above, Taft, South Taft and Taft Heights do not meet environmental justice criteria to be considered either a minority or low income population. Maricopa is considered a low income population. It is likely that with the reduction in unregulated agricultural activities (i.e., periodic disking, plowing, pesticide/herbicide application, etc) and compliance with all federal, State and local jurisdiction requirements incorporated into the Proposed Action, the community of Maricopa along with the other neighboring communities and Kern County in general, would benefit from improvements to air quality emissions of fugitive dust and greenhouse gases, and a reduced impact to biological resources. Additionally, socioeconomic benefits from job creation and monetary expenditures from the ongoing operations to local businesses, governments and households over the lifetime of the project is expected, and would directly and/or indirectly benefit the residents of the four communities in the vicinity of the Covered Area. This Alternative does not disproportionately impact on minority and low-income populations.

4.13.5 Reduced Permit Area Alternative

Under the Reduced Permit Area Alternative, the Permit Area would be reduced from 5,784.3 acres to 3,682 acres by removing from the Project: Sites 4-S/4-M (652.5 acres), 6-S (320.9 acres), 7-S/7-M (481.2 acres) and 17-C (647.7 acres). The lands excluded from the Permit Area would likely remain vacant and would continue to be disked on a regular basis for weed control, and would be similar to existing conditions. If water became available, these lands would likely be converted to active agricultural production.

The Reduced Permit Area Alternative is anticipated to have similar, but reduced impacts as the proposed HCP Alternative. With the reduction of 2,103.3 acres, ground disturbance activities associated with preparation and construction within the PV facilities sites would have a lessened potential to adversely affect environmental justice populations. However, as noted previously, compliance with federal, State and local rules and regulations, project-generated impacts from

PV facilities and Conservation Areas are anticipated to be minimal, and of less severity than those associated with unrestricted agricultural activities. Improved air quality and reduced impacts to biological resources over the life of the Reduced Permit Area Alternative would occur, but to a lesser extent with the possible continued agricultural activities on the excluded properties.

As discussed above, Taft, South Taft and Taft Heights do not meet environmental justice criteria to be considered either a minority or low income population. Maricopa is considered a low income population. Socioeconomic benefits, albeit at a reduced level, is still expected and would directly and/or indirectly benefit the residents of the four communities in the vicinity of the Covered Area. This Alternative does not disproportionately impact on minority and low-income populations

4.13.6 Cumulative Effects

The approach for analyzing cumulative effects is described in Section 4.0.3, Methods for Assessing Cumulative Effects.

The potential cumulative effects are analyzed in the context of the criteria discussed in Section 4.13.2, Methods, which includes each alternative's potential to cause adverse socioeconomic effects, including causing disproportionate effects on environmental justice populations. As discussed above, the cumulative effects analysis area is concurrent with the Covered Lands, with the exception of demographic data, which are presented in the context of Kern County with respect to cumulative effects on socioeconomics or environmental justice.

As noted above, Kern County in general, as well as Taft, South Taft and Taft Heights, does not meet environmental justice criteria to be considered either a minority or low income population. Maricopa is considered a low income population. However, all four communities will be evaluated.

Cumulative effects related to environmental justice populations are indirect or secondary effects related to the future development of solar PV facilities that would be facilitated by the creation of a Conservation Area. Whether or not such effects would be substantial cumulatively is primarily dependent on the mitigation measures put in place by other federal, local, and State authorities pursuant to their project approval process.

4.13.6.1 Socioeconomic Effects and Environmental Justice

Under the No Action Alternative, the existing land uses and environmental conditions associated with each alternative regarding the PV solar facilities sites and the Conservation Areas would essentially maintain the current socioeconomic conditions in the Covered Area. This would result in no socioeconomic benefits from job creation and monetary expenditures, nor would any

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health benefits associated with the proposed project be expected. Because the current uses are anticipated to continue, no cumulative adverse effects are expected. Therefore, there would be no direct or indirect adverse cumulative environmental justice effects associated with No Action Alternative.

Both the Proposed HCP Alternative and the Reduced Permit Area are expected to result in beneficial economic effects proportional to the extent of the proposed development. Economic benefits such as job creation, increases in monetary expenditures from construction, as well as the ongoing operations to local businesses, governments and households over the lifetime of the project is expected. These factors would directly and/or indirectly benefit the residents of Kern County as well as the four communities in the vicinity of the Covered Area. In addition, these communities, as well as Kern County, would receive positive health benefits from improvements to air quality emissions of fugitive dust and greenhouse gases, and a reduced impact to biological resources. Other projects in the region would similarly be expected to contribute in a meaning and positive way, and would result in cumulative beneficial economic and health benefits related to environmental justice populations.

The proposed action alternatives are therefore anticipated to have beneficial cumulative socioeconomic and health effects when considered with the other projects, and would result in a positive, cumulative contribution to the socioeconomic advantages realized by low-income and minority populations, as well as Kern County.