Draft Environmental Impact Report

SCH# 2024041028

Volume 1

Chapters 1 through 11

BUTTONBUSH SOLAR AND STORAGE PROJECT

by 29SC 8me, LLC.

(PP24407)

Site 1
CUP No. 17, Map 98; CUP No. 19, Map 98;
CUP No. 25, Map 99; GPA No. 4, Map 98;
SPA No. 5, Map 98; GPA No. 8, Map 99;
Williamson Act Land Use Contract Cancellations;
Farmland Security Zone Contract Cancellation;
Non-Summary Vacation, Map 99

Site 2
CUP No. 14, Map 77; CUP No. 20, Map 77;
CUP No. 18, Map 98; GPA No. 10, Map 77;
Williamson Act Land Use Contract Cancellations

Site 3
CUP No. 15, Map 77; GPA No. 11, Map 77;
Williamson Act Land Use Contract Cancellations

Site 4
CUP No. 16, Map 77; GPA No. 12, Map 77;
Williamson Act Land Use Contract Cancellation

Site 5
CUP No. 26, Map 99; CUP No. 27, Map 99;
CUP No. 28, Map 99; CUP No. 61, Map 100;
GPA No. 10, Map 99; GPA No. 31, Map 100;
Williamson Act Land Use Contract Cancellations;
Non-Summary Vacation, Map 99

Site 6
CUP No. 17, Map 78; GPA No. 10, Map 78;
Williamson Act Land Use Contract Cancellations

Site 8
CUP No. 12, Map 54; CUP No. 17, Map 77;
CUP No. 18, Map 77; CUP No. 19, Map 77;
GPA No. 1, Map 54; GPA No. 13, Map 77;
Williamson Act Land Use Contract Cancellations

Kern County
Planning and Natural Resources Department
Bakersfield, CA

November 2025

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KERN COUNTY
Planning & Natural Resources

Craig M. Murphy, Interim Director
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
Phone: (661) 862-8600
TTY Relay 1-800-735-2929
Email: planning@kerncounty.com
Web Address: https://kernplanning.com

NOTICE OF AVAILABILITY FOR PUBLIC REVIEW AND HEARING ON THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE PROPOSED BUTTONBUSH SOLAR STORAGE PROJECT

This is to advise that the Kern County Planning and Natural Resources Department has prepared a Draft Environmental Impact Report (EIR) for the project identified below.

As mandated by State law, the minimum public review period for this document is 45 days.

PROJECT TITLE: Draft EIR for the Buttonbush Solar and Storage Project by 29SC 8me, LLC. (PP24407); *Site 1:* CUP No. 17, Map 98; CUP No. 19, Map 98; CUP No. 25, Map 99; GPA No. 4, Map 98; SPA No. 5, Map 98; GPA No. 8, Map 99; Williamson Act Land Use Contract Cancellations; Farmland Security Zone Contract Cancellation; Non-Summary Vacation, Map 99. *Site 2:* CUP No. 14, Map 77; CUP No. 20, Map 77; CUP No. 18, Map 98; GPA No. 10, Map 77; Williamson Act Land Use Contract Cancellations. *Site 3:* CUP No. 15, Map 77; GPA No. 11, Map 77; Williamson Act Land Use Contract Cancellations. *Site 4:* CUP No. 16, Map 77; GPA No. 12, Map 77; Williamson Act Land Use Contract Cancellation. *Site 5:* CUP No. 26, Map 99; CUP No. 27, Map 99; CUP No. 28, Map 99; CUP No. 61, Map 100; GPA No. 10, Map 99; GPA No. 31, Map 100; Williamson Act Land Use Contract Cancellations; Non-Summary Vacation, Map 99. *Site 6:* CUP No. 17, Map 78; GPA No. 10, Map 78; Williamson Act Land Use Contract Cancellations. *Site 8:* CUP No. 12, Map 54; CUP No. 17, Map 77; CUP No. 18, Map 77; CUP No. 19, Map 77; GPA No. 1, Map 54; GPA No. 13, Map 77; Williamson Act Land Use Contract Cancellations.

PROJECT LOCATION: The several separate sites of the proposed Project are entirely located within unincorporated Kern County, directly north of the community of Buttonwillow, approximately four miles west of the City of Bakersfield, two miles west of the City of Shafter, and seven miles southwest of the City of Wasco. The proposed Project straddles and crosses Interstate 5 (I-5) and is east of Buttonwillow Raceway Park, north of State Route (SR) 58, and south of Kimberlina Road.

DOCUMENT AVAILABILITY: The Draft EIR and the documents referenced in it are available for public review at the Planning and Natural Resources Department, which is located at 2700 "M" Street, Suite 100, in Bakersfield, CA 93301 or on the Department website at:

https://kernplanning.com/environmental-doc/buttonbush-solar-project/

PUBLIC COMMENT: The required Draft EIR public review period is 45 days.

November 18th, 2025 – January 2nd, 2026

Written comments may be submitted to the project planner identified below prior to the close of the Draft EIR public review period on **January 2nd, 2026, at 5:00 p.m.** to:

Kern County Planning and Natural Resources Department
ATTN: Jack Foster, Planner II
2700 "M" Street, Suite 100, Bakersfield, CA 93301
Phone: (661) 862-5010
E-mail: Fosterja@kerncounty.com

PUBLIC HEARING: A public hearing has been scheduled with the Kern County Planning Commission to consider a recommendation on the proposed project and solicit comments on the adequacy and completeness of the analysis and proposed mitigation measures described in the Draft EIR. You may comment by providing testimony at the public hearing on:

DATE: **February 12, 2026**
TIME: **7:00 P.M. or soon thereafter**
LOCATION: **Chambers of the Board of Supervisors**
Kern County Administrative Center, First Floor
1115 Truxtun Avenue, Bakersfield, CA 93301

After consideration by the Planning Commission, a public hearing will be scheduled for the Kern County Board of Supervisors for final consideration and action. Comments may be provided at that hearing or prior to any action by the Board of Supervisors on any matter. The Board of Supervisors decision is final.

If you challenge the action taken on this request in court, you may be limited to raising only those issues you or someone else raised at this public hearing, or in written correspondence delivered to the Planning and Natural Resources Department at, or prior to, the public hearing.

PROJECT DESCRIPTION: The proposed Buttonbush Solar and Storage Project as proposed by 29SC 8me, LLC. would allow for the construction and operation of a photovoltaic (PV) solar facility with the associated infrastructure on 7 proposed project sites that would collectively generate up to 2,000 megawatts (MW) or 2 gigawatts (GW) of renewable electrical energy including a battery energy storage system (BESS) with the capacity of storing approximately 16,000 megawatt-hours (MWh) or 16 gigawatt-hours (GWh) on approximately 11,983 acres across 128 privately owned parcels in an unincorporated area of northwestern Kern County. Implementation of the proposed project includes requests for multiple General and Specific Plan Amendments (GPAs/SPAs), Conditional Use Permits (CUPs), the cancellation of Williamson Act Land Use and Farmland Security Zone Contracts (WALUC/FSZC), and Non-Summary Street Vacations (NSV) from the Kern County Planning & Natural Resources Department.

ENVIRONMENTAL REVIEW FINDINGS: Anticipated significant and unavoidable impacts on Aesthetics and Visual Resources (Visual Character), Agricultural Resources, Air Quality (Construction), Biological Resources, Mineral Resources, Wildfire.

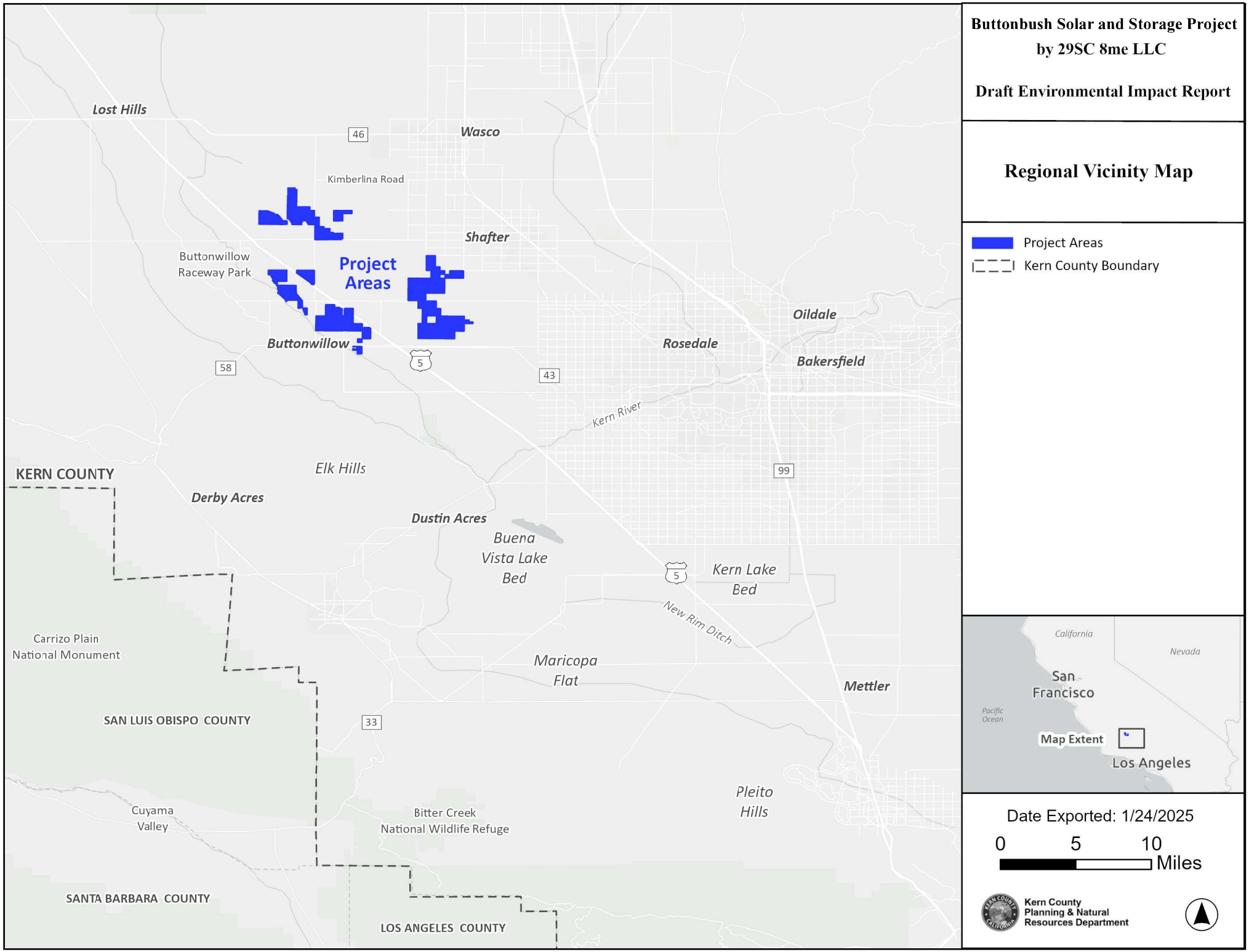
CRAIG MURPHY, Interim Director
Planning and Natural Resources Department

To be published once only on next available date and as soon as possible

THE BAKERSFIELD CALIFORNIAN

JF (11/18/25)

cc: County Clerk (2) (with fee)
Environmental Status Board
Supervisorial District No. 4


Lost Hills
46
Wasco
Kimberlina Road
Shafter
Buttonwillow Raceway Park
Project Areas
Buttonwillow
58
5
43
Oildale
Rosedale
Bakersfield
Kern River
99
KERN COUNTY
Elk Hills
Derby Acres
Dustin Acres
Buena Vista Lake Bed
5
Kern Lake Bed
New Rim Ditch
Carrizo Plain National Monument
Maricopa Flat
Mettler
SAN LUIS OBISPO COUNTY
33
Pleito Hills
Cuyama Valley
Bitter Creek National Wildlife Refuge
SANTA BARBARA COUNTY
LOS ANGELES COUNTY
Buttonbush Solar and Storage Project
by 29SC 8me LLC
Draft Environmental Impact Report
Regional Vicinity Map
Project Areas
Kern County Boundary
California
Nevada
San Francisco
Pacific Ocean
Map Extent
Los Angeles
Date Exported: 1/24/2025
0
5
10
Miles
Kern County Planning & Natural Resources Department

Buttonbush Solar & Storage Project
Agency & Interested Parties Notification

City of Arvin
P.O. Box 548
Arvin, CA 93203

City of Wasco
764 E Street
Wasco, CA 93280

Bakersfield City Planning Dept
1715 Chester Avenue
Bakersfield, CA 93301

Bakersfield City Public Works Dept
1501 Truxtun Avenue
Bakersfield, CA 93301

California City Planning Dept
21000 Hacienda Blvd.
California City, CA 93515

Delano City Planning Dept
P.O. Box 3010
Delano, CA 93216

City of Maricopa
P.O. Box 548
Maricopa, CA 93252

City of McFarland
401 West Kern Avenue
McFarland, CA 93250

City of Tehachapi
Attn: John Schlosser
115 South Robinson Street
Tehachapi, CA 93561-1722

City of Shafter
336 Pacific Avenue
Shafter, CA 93263

City of Taft
Planning & Building
209 East Kern Street
Taft, CA 93268

Kings County Planning Agency
1400 West Lacey Blvd, Bldg 6
Hanford, CA 93230

Ventura County RMA Planning Div
800 South Victoria Avenue, L1740
Ventura, CA 93009-1740

Inyo County Planning Dept
P.O. Drawer "L"
Independence, CA 93526

San Luis Obispo Co Planning Dept
Planning and Building
976 Osos Street
San Luis Obispo, CA 93408

Los Angeles Co Reg Planning Dept
320 West Temple Street
Los Angeles, CA 90012

San Bernardino Co Planning Dept
385 North Arrowhead Avenue, 1st Floor
San Bernardino, CA 92415-0182

North West Kern Resource Cons Dist
5080 California Avenue, Suite 150
Bakersfield, CA 93309

Santa Barbara Co Resource Mgt Dept
123 East Anapamu Street
Santa Barbara, CA 93101

Tulare County Planning & Dev Dept
5961 South Mooney Boulevard
Visalia, CA 93291

State Air Resources Board
Stationary Resource Division
P.O. Box 2815
Sacramento, CA 95812

U.S. Bureau of Land Management
Caliente/Bakersfield
35126 McMurtrey Avenue
Bakersfield, CA 93308

U. S. Fish & Wildlife Service
Division of Ecological Services
2800 Cottage Way #W-2605
Sacramento, CA 95825-1846

State Dept of Conservation
Director's Office
715 "P" Street, MS 1900
Sacramento, CA 95814

Environmental Protection Agency
Region IX Office
75 Hawthorn Street
San Francisco, CA 94105

U.S. Dept of Agriculture/NRCS
5080 California Avenue, Ste 150
Bakersfield, CA 93309-0711

California State University
Bakersfield - Library
9001 Stockdale Highway
Bakersfield, CA 93309

So. San Joaquin Valley Arch Info Ctr
California State University of Bkfd
9001 Stockdale Highway
Bakersfield, CA 93311

Caltrans/Dist 6
Planning/Land Bank Bldg.
P.O. Box 12616
Fresno, CA 93778

State Dept of Food & Agriculture
1220 "N" Street
Sacramento, CA 95814

State Dept of Conservation
Geologic Energy Management Division
11000 River Run Boulevard
Bakersfield, CA 93311

State Dept of Conservation
Division of Land Resource Protection
715 "P" Street, MS 1904
Sacramento, CA 95814

State Water Resources Control Board
Division of Drinking Water
Attn: Jesse Dhaliwal, Sr. Sanitary Eng
4925 Commerce Drive, Suite 120
Bakersfield, CA 93309

California Energy Commission
James W. Reed, Jr.
1516 Ninth Street
Mail Stop 17
Sacramento, CA 95814

California Fish & Wildlife
1234 East Shaw Avenue
Fresno, CA 93710

State Dept of Toxic Substance Control
Environmental Protection Agency
1515 Tollhouse Road
Clovis, CA 93612

California Highway Patrol
Planning & Analysis Division
P.O. Box 942898
Sacramento, CA 94298-0001

Integrated Waste Management
P.O. Box 4025, MS #15
Sacramento, CA 95812-4025

Kern County Administrative Office

Public Utilities Comm Energy Div
505 Van Ness Avenue
San Francisco, CA 94102

California Regional Water Quality
Control Board/Central Valley Region
1685 E Street
Fresno, CA 93706-2020

Kern County
Env Health Services Department

Cal Environmental Protection Agency
Dept of Toxic Substances Control, Reg 1
Attn: Dave Kereazis, Permit Div - CEQA
8800 Cal Center Drive, 2nd Floor
Sacramento, CA 95826

Kern County
Agriculture Department

Kern County Library – Beale
Andie Sullivan

Kern County Public Works Department
Building & Development
Floodplain

Kern County Public Works Department
Building & Development
Survey

Kern County Public Works Department
Building & Development
Development Review

Kern County Fire Dept
Aaron Duncan

Kern County Library – Beale
Local History Room

Shafter Library & Learning Center
236 James Street
Shafter, CA 93263

Kern County Parks & Recreation

Kern County Sheriff's Dept
Administration

Wasco Union Elementary School District
639 Broadway
Wasco, CA 93280

Kern County Library – Wasco
1102 7th Street
Wasco, CA 93280

Kern County Library – Buttonwillow
101 North Main Street
Buttonwillow, CA 93206

Maple School District
29161 Fresno Avenue
Shafter, CA 93263

Kern County Public Works Department
Operations & Maintenance
Regulatory Monitoring & Reporting

Wasco Union High School District
P.O. Box 250
Wasco, CA 93280

Kern County Superintendent of Schools
Attention School District Facility Services
1300 - 17th Street
Bakersfield, CA 93301

Richland-Lerdo Union School District
331 Shafter Avenue
Shafter, CA 93263

Buttonwillow Union School District
42600 Highway 58
Buttonwillow, CA 93206

Kern County Water Agency
3200 Rio Mirada Drive
Bakersfield, CA 93308

Rio Bravo-Greeley Union School District
6521 Enos Lane
Bakersfield, CA 93314

Kern High School District
5801 Sundale Avenue
Bakersfield, CA 93309

Shafter Rec & Parks District
700 East Tulare Avenue
Shafter, CA 93263

KernCOG
1401 19th Street - Suite 300
Bakersfield, CA 93301

Local Agency Formation Comm/LAFCO
5300 Lennox Avenue, Suite 303
Bakersfield, CA 93309

Adams, Broadwell, Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

Buttonwillow Rec & Parks District
P.O. Box 434
Buttonwillow, CA 93206-9320

Wasco Rec & Parks District
1280 Poplar Street
Wasco, CA 93280

Los Angeles Audubon
926 Citrus Avenue
Los Angeles, CA 90036-4929

San Joaquin Valley
Air Pollution Control District
1990 East Gettysburg Avenue
Fresno, CA 93726

Kern Mosquito Abatement District
4705 Allen Road
Bakersfield, CA 93314

Defenders of Wildlife
Attn: Kim Delfino
980 – 9th Street, Suite 1730
Sacramento, CA 95814

AT&T California
OSP Engineering/Right-of-Way
4901 Ashe Road
Bakersfield, CA 93313

Kern Audubon Society
Attn: Frank Bedard, Chairman
7612 Angela Ave
Bakersfield CA 93308

Pacific Gas & Electric Co
Land Projects
650 "O" Street, First Floor
Fresno, CA 93760-0001

Center Race, Poverty, & Environnent
5901 Christie Avenue, Suit 208
Emeryville, CA 94608

Center Race, Poverty, & Environment
CA Rural Legal Assistance Foundation
1012 Jefferson Street
Delano, CA 93215

Southern California Gas Company
Transportation Dept
P.O. Box 513249
Los Angeles, CA 90051

California Farm Bureau
2300 River Plaza Drive, NRED
Sacramento, CA 95833

Native American Heritage
Council of Kern County
Attn: Gene Albitre
18169 Highway 155
Woody, CA 93287

Tejon Indian Tribe
Attn: Curtis Alcantar
4941 David Road
Bakersfield CA 93307

Sierra Club/Kern Kaweah Chapter
P.O. Box 3357
Bakersfield, CA 93385

Southern California Gas Co
35118 McMurtrey Avenue
Bakersfield, CA 93308-9477

Darren Kelly
Sr. Business Manager
Terra-Gen Power, LLC
1095 Ave of the Americas – FL 25, Ste A
New York, NY 10036-6797

Verizon California, Inc.
Attn: Engineering Department
520 South China Lake Boulevard
Ridgecrest, CA 93555

David Laughing Horse Robinson
P.O. Box 20849
Bakersfield, CA 93390

Fotowatio Renewable Ventures
Sean Kiernan
44 Montgomery Street, Suite 2200
San Francisco, CA 94104

Structure Cast
Larry Turpin, Precast Sales Manager
8261 McCutchen Road
Bakersfield, CA 93311

Darren Kelly
Sr. Business Manager
Terra-Gen Power, LLC
1095 Ave of the Americas – FL 25, Ste A
New York, NY 10036-6797

Robert Burgett
9261 - 60th Street, West
Mojave, CA 93501

Wayne Mayes
Iberdrola Renewables
Dir Tech Serv
1125 NW Couch St, Ste 700, 7th Fl
Portland, OR 97209

Kate Kelly
Kelly Group
P.O. Box 868
Winters, CA 95694

Kevin Johnston
2476 Buena Vista Avenue
Livermore, CA 94550

Tulare Basin Wetlands Association
Attention Dennis Slater
5316 Muirfield Drive
Bakersfield, CA 93306-9704

Rosedale-Rio Bravo Water District
849 Allen Road
Bakersfield, CA 93314

Lozeau Drury LLP
1939 Harrison Street, Suite 150
Oakland, CA 94612

Terra-Gen Power, LLC
Randy Hoyle
11512 El Camino Real, Suite 370
San Diego, CA 92130-3025

David Walsh
22941 Banducci Road
Tehachapi, CA 93561

EDP Renewables Company
North America, LLC
53 SW Yamhill Street
Portland, OR 97204

Semi Tropic Water Storage District
P.O. Box Z
Wasco, CA 93280

Bill Barnes
Dir of Asset Mgmt
AES Midwest Wind Gen
P.O. Box 2190
Palm Springs, CA 92263-2190

Lozeau Drury LLP
1939 Harrison Street, Suite 150
Oakland, CA 94612

Michael Strickler
Iberdrola Renewables, Sr Proj Mgr
1125 NW Couch St, Ste 700, 7th Fl
Portland, OR 97209

Carol Lawhon
Association Executive, IOM
Tehachapi Area Assoc of Realtors
803 Tucker Road
Tehachapi, CA 93561

Leadership Counsel for
Justice & Accountability
Attn: Emma De La Rosa
1522 18th Street
Bakersfield, CA 93301

Mitchell M. Tsai
139 South Hudson Ave, Suite 200
Pasadena, CA 91101

Renewal Resources Group
Holding Company
Rupal Patel
113 South La Brea Avenue, 3rd Floor
Los Angeles, CA 90036

Congentrix Sunshine, LLC
Rick Neff
9405 Arrowpoint Blvd
Charlotte, NC 28273

Buena Vista Water Storage District
P.O. Box 756
Buttonwillow, CA 93206

Wind Stream, LLC
Albert Davies
1275 - 4th Street, No. 107
Santa Rosa, CA 95404

Sarah K. Friedman
Beyond Coal Campaign/Sierra Club
1417 Calumet Avenue
Los Angeles, CA 90026

Pacific Gas and Electric Company
EGI Department
P.O. Box 770000
Mail Code N9H
San Francisco, CA 94177

Recurrent Energy
Seth Israel
300 California Street, 8th Floor
San Francisco, CA 94101-1407

Matthew Gorman
The Gorman Law Firm
1346 E. Walnut Street, Suite 220
Pasadena, CA 91106

LIUNA
6800 District Boulevard
Bakersfield CA 93313

Adams, Broadwell, Joseph & Cardozo
Attn: Alex Stukan
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

Buttonbush Solar & Storage Project
AB 52 Notification

Tejon Indian Tribe
Attn: Curtis Alcantar
4941 David Road
Bakersfield, CA 93307

Twenty-Nine Palms Band of Mission Indians
Attn: Anthony Madrigal Jr.
46-200 Harrison Place
Coachella, CA 92236

Twenty-Nine Palms Band of Mission Indians
Attn: Darrell Mike
46-200 Harrison Place
Coachella, CA 92236

Yuhaaviatam of San Manuel Nation
Attn: Alexandra McCleary
26569 Community Center Drive
Highland, CA 92346

Torres Martinez Desert Cahuilla Indians
Attn: Michael Mirelez
P.O. Box 1160
Thermal, CA 92274

Morongo Band of Mission Indians
Attn: Aurelia R. Torres
12700 Pumarra Road
Banning, CA 92220

Buttonbush Solar & Storage Project
SB 18 Notification

Tule River Indian Tribe
Attn: Neil Peyron
P.O. Box 589
Porterville, CA 93258

Tubatulabals of Kern Valley
Attn: Robert Gomez
P.O. Box 226
Lake Isabella, CA 93240

Kern Valley Indian Community
Attn: Brandy Kendricks
30741 Foxridge Court
Tehachapi, CA 93561

Kern Valley Indian Community
Attn: Robert Robinson
P.O. Box 1010
Lake Isabella, CA 93240

Kitanemuk & Yowlumne Tejon Indians
Attn: Delia Dominguez
115 Radio Street
Bakersfield, CA 93305

Tejon Indian Tribe
Attn: Candice Garza
4941 David Road
Bakersfield, CA 93307

Santa Rosa Rancheria Tachi Yokut Tribe
Attn: Shana Powers
P.O. Box 8
Lemoore, CA 93245

Santa Rosa Rancheria Tachi Yokut Tribe
Attn: Samantha McCarty
P.O. Box 8
Lemoore, CA 93245

Santa Rosa Rancheria Tachi Yokut Tribe
Attn: Nichole Escalon
P.O. Box 8
Lemoore, CA 93245

Buttonbush Solar & Storage Project
Surface APNs Notification

103 100 19 01 4
WILLOW AVENUE INVESTMENTS
P O BOX 5379
FRESNO CA 93755-5379

087 160 53 00 4
A J PARSONS & FAMILY LTD PTP
400 BUTTONWILLOW DR
BUTTONWILLOW CA 93206-9749

087 070 11 00 6
ADGD ENTERPRISE LLC
4210 BOUQUET WY SP 39
SACRAMENTO CA 95834

087 060 04 00 3
AERA ENERGY LLC
P O BOX 11164
BAKERSFIELD CA 93389-1164

103 070 15 00 5
AFFENTRANGER BROTHERS
18107 KRATZMEYER RD
BAKERSFIELD CA 93314-9481

103 010 18 00 6 **DUP**
AFFENTRANGER FARMS LLC
18107 KRATZMEYER RD
BAKERSFIELD CA 93314-9481

103 010 42 00 5
3&1 FARMS INC
6608 BRANDT RD
BUTTONWILLOW CA 93206-9537

103 030 45 00 0
AINHOA LAND HOLDINGS LP
PO BOX 816
BUTTONWILLOW CA 93206

100 030 16 00 5
ANALEN L P
400 BUTTONWILLO DR
BUTTONWILLOW CA 93206

087 200 26 00 7
ANDREOTTI HEIDI
436 COTTON AV
BUTTONWILLOW CA 93206-9746

087 160 19 01 5
ANDREOTTI LOUIS JR
610 DARGATZ RD
BUTTONWILLOW CA 93206-9751

087 030 32 01 4
ANDREOTTI VIDO L SPECIAL NEEDS
P O BOX 842
BUTTONWILLOW CA 93206-0842

087 030 01 00 5
ANDREOTTI VIDO L SPECIAL NEEDS
P O BOX 252
BUTTONWILLOW CA 93206

087 030 08 00 6 **DUP**
ANDREOTTI VIDO L SPECIAL NEEDS
P O BOX 252
BUTTONWILLOW CA 93206

087 070 54 00 1
ANDREOTTI VIDO L SPECIAL NEEDS
PO BOX 842
BUTTONWILLOW CA 93206

087 130 25 00 4
ANNDY LLC
12932 ANDY DR
CERRITOS CA 90703-6066

101 010 17 00 9
AREGSUN FARMING CO 2 LLC
413 PALM DR # 1
GLENDALE CA 91202-2307

088 130 21 00 9
AUKEMAN INVESTMENTS LP
17781 ROAD 96 RD
TULARE CA 93274-9578

071 150 16 00 9
B & K L P
1231 G ST
WASCO CA 93280

087 010 18 00 9
B&E ROMANINI INVESTMENTS LP
PO BOX 786
BUTTONWILLOW CA 93206

069 340 51 00 8
BARRAZA HOLDINGS LLC
6710 FLORENCE AV
BELL GARDENS CA 90201

087 010 09 02 1
BASSI JANET L 2011 TRUST
1336 RICHARD ST
SAN LUIS OBISPO CA 93401

103 030 16 00 6
BELLUOMINI BROTHERS FARMING
12102 HURST PARK DR
BAKERSFIELD CA 93311-8573

103 030 21 00 0 **DUP**
BELLUOMINI ELMO E ET AL
12102 HURST PARK DR
BAKERSFIELD CA 93311-8573

103 100 28 00 1 **DUP**
BELLUOMINI RANCHES LP
12102 HURST PARK DR
BAKERSFIELD CA 93311-8573

069 340 44 00 8
BHAIKA FARMS L P
10801 RAMSGATE WY
BAKERSFIELD CA 93311-2936

100 020 19 00 1
BITTLESTON ALLAN & LYNDA REV
7210 MEADOWBROOK LN
BAKERSFIELD CA 93309

100 030 06 00 6
BLOEMHOF AG ENTERPRISES
P O BOX 747
WASCO CA 93280

087 200 02 00 7
BONNIE & DAVID BLOEMHOF LLC
142 E TULARE AV
SHAFTER CA 93203

087 200 03 00 0 **DUP**
BONNIE & DAVID BLOEMHOF LLC
142 E TULARE AV
SHAFTER CA 93263-1834

103 060 04 00 0
BUSHNELL JON R & JULIA
BUSHNELL FAMILY TRUST
6608 BRANDT RD
BUTTONWILLOW CA 93206-9537

103 070 28 00 3
BUSHNELL MICHAEL D
PO BOX 853
BUTTONWILLOW CA 93206-0853

101 020 08 00 6
BUTTONWILLOW COUNTY WATER DIST
P O BOX 874
BUTTONWILLOW CA 93206

087 130 20 00 9
BUTTONWILLOW IMP DIST
P O BOX Z
WASCO CA 93280

087 040 06 00 3
BUTTONWILLOW LAND & CATTLE CO
7540 TRACY AV
BUTTONWILLOW CA 93206

100 100 34 00 7
BUTTONWILLOW WAREHOUSE CO
3430 UNICORN RD
BAKERSFIELD CA 93308-6829

087 050 07 00 9
CALIFORNIA RESOURCES PRODUCTION CORPORATION
27200 TOURNEY RD STE 200
SANTA CLARITA CA 91355-4910

087 010 09 01 2
CALLAHAN RANCH PROP LLC
P O BOX 1359
BETHEL ISLAND CA 94511

087 010 10 00 5 **DUP**
CALLAHAN RANCH PROP LLC
PO BOX 1359
BETHEL ISLAND CA 94511

103 130 02 00 4
CALLAN JOHN T
PO BOX 764
KENTFIELD CA 94914-0764

103 070 06 01 8
COLLINS DONALD & TRACY
3154 E PANAMA LN
BAKERSFIELD CA 93307-9208

088 180 37 00 1
COUNTY OF KERN
1115 TRUXTUN AV FLR 3
BAKERSFIELD CA 93301

101 060 06 00 2 **DUP**
COUNTY OF KERN

101 060 12 00 9
COUNTY OF KERN
1115 TRUXTUN AV FLR 4
BAKERSFIELD CA 93301

103 010 37 00 1
CUEVAS JONATHAN
7520 BRANDT RD
BAKERSFIELD CA 93206

087 090 01 00 3
DE BOER GEORGE & JENNIFER J FAMILY TRUST
PO BOX 757
BUTTONWILLOW CA 93206

103 030 37 00 7
DE SHANE FAMILY TRUST
8605 CHAUMONT CT
BAKERSFIELD CA 93311-1502

100 100 13 01 5
DOVE RANCH LLC
3430 UNICORN RD
BAKERSFIELD CA 93308

103 010 38 00 4
ESPARZA JOSE ROLANDO
PO BOX 412
BUTTONWILLOW CA 93206-0412

087 010 04 01 7
ETOLA MOSLEY FAMILY L P
29747 SAN DIEGO ST
SHAFTER CA 93263-9763

088 160 17 00 7
FAIAL LAND CO LP
PO BOX 456
ARVIN CA 93203-0456

103 110 01 00 5
FARMERS COOPERATIVE GIN INC
2531 WASCO WY
BUTTONWILLOW CA 93206

103 120 12 00 0
FARMERS COOPERATIVE GIN INC
RT 1 BX 15
BUTTONWILLOW CA 93206

103 040 20 00 0
FIVE RIVERS RANCH LLC
810 BAYRIDGE PL
FAIRFIELD CA 94535

100 020 04 00 7
FOX THOMAS W & LORIE A FAMILY TRUST
7327 OUTINGDALE DR
BAKERSFIELD CA 93309-2764

087 160 52 00 1 **DUP**
FOX THOMAS W & LORIE A FMLY TR
7327 OUTINGDALE DR
BAKERSFIELD CA 93309-2764

087 160 25 00 3
FRED PALLA FARMS INC
327 CORN CAMP RD
BUTTONWILLOW CA 93206-9729

087 130 28 00 3 **DUP**
FRED PALLA FARMS INC ET AL
327 CORN CAMP RD
BUTTONWILLOW CA 93206-9729

100 090 02 00 2
GEORGE HAY CORPORATION
2001 22ND ST STE 100
BAKERSFIELD CA 93301

087 060 43 00 6
GIANNINI MICHAEL L & JENNIFER L
P O BOX 815
BUTTONWILLOW CA 93206

104 050 02 00 8
GLOBAL AG PROP USA LLC
2004 FOX DR STE L
CHAMPAIGN IL 61820-7346

103 010 29 00 8
GONTERO CLARA F M TR
525 PINEY WY
MORRO BAY CA 93442-2353

069 350 17 00 3
GOOSE POND AG INC
301 E MAIN ST
TURLOCK CA 95380-4537

069 340 28 01 1
GOOSELAKE HOLDING CO
7540 TRACY AV
BUTTONWILLOW CA 93206

104 100 05 00 1
GRIMMWAY ENTERPRISES INC
PO BOX 81498
BAKERSFIELD CA 93380-1498

103 010 36 00 8
HB AG INVS LLC
12300 PANAMA LN
BAKERSFIELD CA 93311-9794

103 070 09 00 8
HIGHWAY 58 LLC
300 PASEO TESORO
WALNUT CA 91789

100 100 07 01 8
HILL RANCH GROUP LLC
1600 CORN CAMP RD
BUTTONWILLOW CA 93206-9729

100 100 22 00 2
HOLDER DENNIS
1632 BUTTONWILLOW DR
BUTTONWILLOW CA 93206-0818

087 140 10 00 3
HOUCHIN CLIFFORD M MARITAL TR
PO BOX 568
BUTTONWILLOW CA 93206-0568

087 160 01 00 3
HOUCHIN WALLACE & JANICE FAM TR FBO VICKI C
3430 UNICORN RD
BAKERSFIELD CA 93308

087 100 05 00 7
J & R DAIRY
PO BOX 667
BUTTONWILLOW CA 93206-0667

104 040 01 00 2
J3G ENTERPRISES LLC
PO BOX 1200
WASCO CA 93280

088 180 35 00 5
JOHNSON NATHANIEL
140 W LERDO HW
SHAFTER CA 93263

088 210 02 00 7
LA BRUCHERIE RONALD V
12953 SOUTH BAKER
ONTARIO CA 91761

087 030 11 00 4
MANSTON GREGG
PO BOX 343
CLAREMONT CA 91711

087 060 24 00 1
MC ABEE WINTON & BARBARA FAMILY TRUST
P O BOX 686
SHAFTER CA 93263-0686

088 180 16 01 9
NO OF RIVER SANITARY DIST 1
204 UNIVERSE AV
BAKERSFIELD CA 93308

088 150 01 00 7
OHANNESON S 23 FARMLAND LLC
PO BOX 22560
BAKERSFIELD CA 93390-2560

087 130 08 01 4
PALLA ALFRED JR & JANETTE FAMILY TRUST
327 CORN CAMP RD
BUTTONWILLOW CA 93206-9729

100 010 20 00 0
PARSONS BROS PTP
400 BUTTONWILLOW DR
BUTTONWILLOW CA 93206-9749

103 120 29 00 0
PROLOGIS
1800 WAZEE ST STE 500
DENVER CO 80202-2526

087 080 04 00 9
JOHN HANCOCK MUTUAL LIFE INS CO
301 E MAIN ST
TURLOCK CA 95380-4537

103 130 06 00 6
JORGE EDWARD P REVOCABLE SEPARATE PROP TRUST
P O BOX 2201
ORCUTT CA 93457

088 190 01 01 8
LERDO HIGHWAY SHAFTER CA LP
1521 WESTBRANCH DR STE 100
MCLEAN VA 22102

087 030 12 00 7 **DUP**
MANSTON GREGG
P O BOX 343
CLAREMONT CA 91711

100 020 07 00 6
MELIS CORP
4450 OLIVE AV
LONG BEACH CA 90807

088 210 06 00 9
NO RIVER SANITARY DIST #1 ETAL
5001 OLIVE DR
BAKERSFIELD CA 93308-2955

069 340 50 00 5
OROZCO JESUS
12340 TELEPHONE AV
CHINO CA 91710

088 190 37 00 4
PALLA DONALD & CATHERINE FAM TRUST
6615 KANE WY
BAKERSFIELD CA 93309

087 200 06 00 9 **DUP**
PARSONS BROTHERS PTP
400 BUTTONWILLOW DR
BUTTONWILLOW CA 93206

087 140 05 00 9
QUAILWOOD GROVES LLC
PO BOX 98
BUTTONWILLOW CA 93206-0098

103 030 11 00 1
JOHNSON K L & PARKER M M
324 W TRYON ST
HILLSBOROUGH NC 27278-2438

103 100 18 00 2
KEYVAN FARMS LLC
PO BOX 82034
BAKERSFIELD CA 93380-2034

103 120 31 00 5
M&C ROMANINI FAMILY L P
6605 MOUNT WHITNEY DR
BAKERSFIELD CA 93309

069 340 34 01 8
MARICOPA ORCHARDS LLC
5260 N PALM AV ML STP M STE 421
FRESNO CA 93704

087 060 10 00 0
MELO JAMES
1644 LANTANA DR
MINDEN NV 89423

088 110 06 00 0
OASIS HOLSTEINS
18041 PALM AV
SHAFTER CA 93263-9533

087 060 29 00 6
PACIFIC GAS & ELECTRIC CO
1 MARKET PZ STE 400
SAN FRANCISCO CA 94105-1004

088 110 05 01 6 **DUP**
PALLA DONALD & CATHERINE FMLY TR
6615 KANE WY
BAKERSFIELD CA 93309

103 040 02 00 8
PORTWOOD PHILIP FAMILY TRUST
P O BOX 781
WASCO CA 93280

103 030 36 00 4
RJSP ROMANINI AG PROP LLC
45600 HWY 58
BUTTONWILLOW CA 93206

087 010 20 00 4
ROMANINI FAMILY L P
PO BOX 786
BUTTONWILLOW CA 93206

087 020 01 00 2
ROMANINI FAMILY L P
12107 HURST PARK DR
BAKERSFIELD CA 93311

087 210 08 00 8
ROMANINI WILLIE EST TR
P O BOX 850
WASCO CA 93280

087 060 46 00 5
RY FARMS INC
10622 RYCROFT WY
BAKERSFIELD CA 93311-2959

087 170 02 01 8
SAGE CREEK RANCH LLC
3430 UNICORN ST
BAKERSFIELD CA 93308

069 350 20 00 1
SANDRIDGE PARTNERS
960 N SAN ANTONIO RD STE 114
LOS ALTOS CA 94022-1346

103 120 25 00 8 **DUP**
SANDRIDGE PARTNERS L P
960 N SAN ANTONIO RD STE 114
LOS ALTOS CA 94022-1346

087 070 02 00 0 **DUP**
SANDRIDGE PARTNERS LP
960 N SAN ANTONIO RD STE 114
LOS ALTOS CA 94022-1346

069 340 72 00 9
SCROGGS ALAN & ELIZABETH
FAMILY TRUST
PO BOX 81678
BAKERSFIELD CA 93380-1678

069 350 07 01 3
SEMITROPIC IMPVT DIST
PO BOX 8043
WASCO CA 93280-8137

087 130 29 00 6 **DUP**
SEMITROPIC IMPVT DIST
PO BOX Z
WASCO CA 93280

069 350 29 00 8
SEMITROPIC WATER STORAGE DIST
P O BOX Z
WASCO CA 93280

088 180 04 01 4 **DUP**
SILL PROP INC
1508 18TH ST STE 320
BAKERSFIELD CA 93301

088 180 02 00 9 **DUP**
SILL PROPERTIES
1508 18TH ST STE 320
BAKERSFIELD CA 93301-4429

088 180 06 01 0
SILL PROPERTIES
1508 18TH ST # 320
BAKERSFIELD CA 93301

088 180 07 00 4 **DUP**
SILL PROPERTIES
1508 18TH ST RM 320
BAKERSFIELD CA 93301

088 180 11 01 4 **DUP**
SILL PROPERTIES INC
1508 18TH ST STE 320
BAKERSFIELD CA 93301

069 340 27 01 8
SINGH DAYA & KAUR SATINDER
599 HWY 46
WASCO CA 93280

100 010 07 00 3
SKY TO WALK HEALTHY LLC
20735 E MILL LN
DIAMOND BAR CA 91789-4071

087 060 42 00 3
SLIKKER 2012 LIVING TR
12001 APRIL ANN AV
BAKERSFIELD CA 93312-3624

103 130 04 00 0
SOUTHERN CALIF EDISON CO
2244 WALNUT GROVE AV
ROSEMEAD CA 91770-3714

087 010 14 00 7
SR RANCH LLC
2905 F ST
BAKERSFIELD CA 93301-1819

100 010 13 00 0
STARRH FAMILY FARMS INC
P O BOX 1537
SHAFTER CA 93263

087 160 24 00 0
STATE OF CALIFORNIA
1807 13TH ST STE 103
SACRAMENTO CA 95814-7117

088 220 01 00 7
STATE OF CALIFORNIA
1416 NINTH ST
SACRAMENTO CA 95814

087 070 10 00 3
STITZINGER B L ET AL
6441 CAMILLE DR
HUNTINGTN BCH CA 92647

087 060 02 00 7
SWIFT STEVEN E & MARY A TR
P O BOX 111
TOUTLE WA 98649

087 010 01 00 9
SYED ASARULISLAM MOHAMMED
& NAYLA ASAR
14404 VIA LA MERCED
BAKERSFIELD CA 93314

087 070 35 00 6
TAYAN REFAAT
25992 LERDO HWY
BUTTONWILLOW CA 93206

100 010 21 00 3
THOMSON FMLY PROP LLC
9913 SUNSET BL
BAKERSFIELD CA 93307-8512

088 150 18 00 7
TISS DAVID L & CONNIE L REV TRUST
32486 N WALKING HORSE LN
ATHOL ID 83801-6116

088 190 20 00 4
TJAARDA RANCHES LLC
19211 MAGNOLIA AV
SHAFTER CA 93263-9561

087 060 45 00 2
TKAC JON V & WENDY D FMLY TR
12309 APRIL ANN AV
BAKERSFIELD CA 93312-4610

100 100 03 01 6
TORETTA LTD I LP
P O BOX 565
BUTTONWILLOW CA 93206

087 010 08 00 0
TRACY RANCH INC
7540 TRACY AV
BUTTONWILLOW CA 93206-9742

087 040 04 00 7
TRACY ROBERT & ELIZABETH REV TR
P O BOX 505
BUTTONWILLOW CA 93206

103 100 37 00 7
UNION PACIFIC RAILROAD CO
1400 DOUGLAS ST
OMAHA NE 68179-1610

069 340 32 00 3
VANDER POEL BRIAN TR
18846 HIGHWAY 30
HAGERMAN ID 83332

069 340 36 00 5
VANDER POEL BRIAN TR
15147 MOORESVILLE PL
BAKERSFIELD CA 93314

088 150 19 00 0
VANDER POEL FAMILY TRUST
18846 HIGHWAY 30
HAGERMAN ID 83332

088 180 36 00 8
VILLALVAZO RAMON & MARIA J
140 W LERDO HW
SHAFTER CA 93263

069 340 71 00 6
WAGNER FAMILY TRUST
PO BOX 975
SHAFTER CA 93263-0975

087 090 04 00 2
WANG CHARLES
7035 STRATUS ST
EASTVALE CA 92880

069 350 08 01 6
WATERHOUSE & NEUFELD FAM TRUST
PO BOX 8014
WASCO CA 93280

087 010 21 00 7
WILDWOOD GROUP INC
2800 ROAD 136
DELANO CA 93215-9326

Buttonbush Solar & Storage Project
Mineral APNs Notification

087 070 11 00 6
ADGD ENTERPRISE LLC
4210 BOUQUET WY SP 39
SACRAMENTO CA 95834

087 160 53 00 4
A J PARSONS & FAMILY LTD PTP
400 BUTTONWILLOW DR
BUTTONWILLOW CA 93206-9749

087 060 04 00 3
AERA ENERGY LLC
P O BOX 11164
BAKERSFIELD CA 93389-1164

103 070 15 00 5
AFFENTRANGER BROTHERS
18107 KRATZMEYER RD
BAKERSFIELD CA 93314-9481

103 010 18 00 6
AFFENTRANGER FARMS LLC
18107 KRATZMEYER RD
BAKERSFIELD CA 93314-9481

103 060 08 00 2
AFFENTRANGER RANCHES
18107 KRATZMEYER RD
BAKERSFIELD CA 93314-9481

103 030 45 00 0
AINHOA LAND HOLDINGS LP
PO BOX 816
BUTTONWILLOW CA 93206

100 030 16 00 5
ANALEN L P
400 BUTTONWILLO DR
BUTTONWILLOW CA 93206

087 200 26 00 7
ANDREOTTI HEIDI
436 COTTON AV
BUTTONWILLOW CA 93206-9746

087 160 19 01 5
ANDREOTTI LOUIS JR
610 DARGATZ RD
BUTTONWILLOW CA 93206-9751

087 030 32 01 4
ANDREOTTI VIDO L SPECIAL NEEDS TR
P O BOX 842
BUTTONWILLOW CA 93206-0842

087 030 01 00 5
ANDREOTTI VIDO L SPECIAL NEEDS TRUST
P O BOX 252
BUTTONWILLOW CA 93206

087 030 08 00 6
ANDREOTTI VIDO L SPECIAL NEEDS TRUST
P O BOX 252
BUTTONWILLOW CA 93206

087 070 54 00 1
ANDREOTTI VIDO L SPECIAL NEEDS TRUST
PO BOX 842
BUTTONWILLOW CA 93206

087 130 25 00 4
ANNDY LLC
12932 ANDY DR
CERRITOS CA 90703-6066

071 150 16 00 9
B & K L P
1231 G ST
WASCO CA 93280

087 010 09 02 1
BASSI JANET L 2011 TRUST
1336 RICHARD ST
SAN LUIS OBISPO CA 93401

103 100 28 00 1
BELLUOMINI RANCHES LP
12102 HURST PARK DR
BAKERSFIELD CA 93311-8573

100 030 06 00 6
BLOEMHOF AG ENTERPRISES
P O BOX 747
WASCO CA 93280

103 060 04 00 0
BUSHNELL JON R & JULIA
BUSHNELL FAMILY TRUST
6608 BRANDT RD
BUTTONWILLOW CA 93206-9537

087 130 20 00 9
BUTTONWILLOW IMP DIST
P O BOX Z
WASCO CA 93280

087 050 07 00 9
CALIFORNIA RESOURCES
PRODUCTION CORPORATION
27200 TOURNEY RD STE 200
SANTA CLARITA CA 91355-4910

103 130 02 00 4
CALLAN JOHN T
PO BOX 764
KENTFIELD CA 94914-0764

101 060 06 00 2
COUNTY OF KERN

101 010 17 00 9
AREGSUN FARMING CO 2 LLC
413 PALM DR # 1
GLENDALE CA 91202-2307

087 010 18 00 9
B&E ROMANINI INVESTMENTS LP
PO BOX 786
BUTTONWILLOW CA 93206

103 030 16 00 6
BELLUOMINI BROTHERS FARMING
12102 HURST PARK DR
BAKERSFIELD CA 93311-8573

069 340 44 00 8
BHAIKA FARMS L P
10801 RAMSGATE WY
BAKERSFIELD CA 93311-2936

087 200 02 00 7
BONNIE & DAVID BLOEMHOF LLC
142 E TULARE AV
SHAFTER CA 93203

103 070 28 00 3
BUSHNELL MICHAEL D
PO BOX 853
BUTTONWILLOW CA 93206-0853

087 040 06 00 3
BUTTONWILLOW LAND & CATTLE
CO
7540 TRACY AV
BUTTONWILLOW CA 93206

087 010 09 01 2
CALLAHAN RANCH PROP LLC
P O BOX 1359
BETHEL ISLAND CA 94511

103 070 06 01 8
COLLINS DONALD & TRACY
3154 E PANAMA LN
BAKERSFIELD CA 93307-9208

101 060 12 00 9
COUNTY OF KERN
1115 TRUXTUN AV FLR 4
BAKERSFIELD CA 93301

088 130 21 00 9
AUKEMAN INVESTMENTS LP
17781 ROAD 96 RD
TULARE CA 93274-9578

069 340 51 00 8
BARRAZA HOLDINGS LLC
6710 FLORENCE AV
BELL GARDENS CA 90201

103 030 21 00 0
BELLUOMINI ELMO E ET AL
12102 HURST PARK DR
BAKERSFIELD CA 93311-8573

100 020 19 00 1
BITTLESTON ALLAN & LYNDA REV
TR
7210 MEADOWBROOK LN
BAKERSFIELD CA 93309

087 200 03 00 0
BONNIE & DAVID BLOEMHOF LLC
142 E TULARE AV
SHAFTER CA 93263-1834

101 020 08 00 6
BUTTONWILLOW COUNTY WATER
DIST
P O BOX 874
BUTTONWILLOW CA 93206

100 100 34 00 7
BUTTONWILLOW WAREHOUSE CO
3430 UNICORN RD
BAKERSFIELD CA 93308-6829

087 010 10 00 5
CALLAHAN RANCH PROP LLC
PO BOX 1359
BETHEL ISLAND CA 94511

088 180 37 00 1
COUNTY OF KERN
1115 TRUXTUN AV FLR 3
BAKERSFIELD CA 93301

103 010 37 00 1
CUEVAS JONATHAN
7520 BRANDT RD
BAKERSFIELD CA 93206

087 090 01 00 3
DE BOER GEORGE & JENNIFER J FAMILY TRUST
PO BOX 757
BUTTONWILLOW CA 93206

103 030 37 00 7
DE SHANE FAMILY TRUST
8605 CHAUMONT CT
BAKERSFIELD CA 93311-1502

100 100 13 01 5
DOVE RANCH LLC
3430 UNICORN RD
BAKERSFIELD CA 93308

103 010 38 00 4
ESPARZA JOSE ROLANDO
PO BOX 412
BUTTONWILLOW CA 93206-0412

087 010 04 01 7
ETOLA MOSLEY FAMILY L P
29747 SAN DIEGO ST
SHAFTER CA 93263-9763

088 160 17 00 7
FAIAL LAND CO LP
PO BOX 456
ARVIN CA 93203-0456

103 110 01 00 5
FARMERS COOPERATIVE GIN INC
2531 WASCO WY
BUTTONWILLOW CA 93206

103 120 12 00 0
FARMERS COOPERATIVE GIN INC
RT 1 BX 15
BUTTONWILLOW CA 93206

103 040 20 00 0
FIVE RIVERS RANCH LLC
810 BAYRIDGE PL
FAIRFIELD CA 94535

100 020 04 00 7
FOX THOMAS W & LORIE A FAMILY TRUST
7327 OUTINGDALE DR
BAKERSFIELD CA 93309-2764

087 160 52 00 1
FOX THOMAS W & LORIE A FMLY TR
7327 OUTINGDALE DR
BAKERSFIELD CA 93309-2764

087 160 25 00 3
FRED PALLA FARMS INC
327 CORN CAMP RD
BUTTONWILLOW CA 93206-9729

087 130 28 00 3
FRED PALLA FARMS INC ET AL
327 CORN CAMP RD
BUTTONWILLOW CA 93206-9729

100 090 02 00 2
GEORGE HAY CORPORATION
2001 22ND ST STE 100
BAKERSFIELD CA 93301

087 060 43 00 6
GIANNINI MICHAEL L & JENNIFER L
P O BOX 815
BUTTONWILLOW CA 93206

104 050 02 00 8
GLOBAL AG PROP USA LLC
2004 FOX DR STE L
CHAMPAIGN IL 61820-7346

103 010 29 00 8
GONTERO CLARA F M TR
525 PINEY WY
MORRO BAY CA 93442-2353

069 350 17 00 3
GOOSE POND AG INC
301 E MAIN ST
TURLOCK CA 95380-4537

069 340 28 01 1
GOOSELAKE HOLDING CO
7540 TRACY AV
BUTTONWILLOW CA 93206

104 100 05 00 1
GRIMMWAY ENTERPRISES INC
PO BOX 81498
BAKERSFIELD CA 93380-1498

103 010 36 00 8
HB AG INVS LLC
12300 PANAMA LN
BAKERSFIELD CA 93311-9794

103 070 09 00 8
HIGHWAY 58 LLC
300 PASEO TESORO
WALNUT CA 91789

100 100 07 01 8
HILL RANCH GROUP LLC
1600 CORN CAMP RD
BUTTONWILLOW CA 93206-9729

100 100 22 00 2
HOLDER DENNIS
1632 BUTTONWILLOW DR
BUTTONWILLOW CA 93206-0818

087 140 10 00 3
HOUCHIN CLIFFORD M MARITAL TR
PO BOX 568
BUTTONWILLOW CA 93206-0568

087 160 01 00 3
HOUCHIN WALLACE & JANICE FAM TR FBO VICKI C
3430 UNICORN RD
BAKERSFIELD CA 93308

087 100 05 00 7
J & R DAIRY
PO BOX 667
BUTTONWILLOW CA 93206-0667

104 040 01 00 2
J3G ENTERPRISES LLC
PO BOX 1200
WASCO CA 93280

087 080 04 00 9
JOHN HANCOCK MUTUAL LIFE INS CO
301 E MAIN ST
TURLOCK CA 95380-4537

103 030 11 00 1
JOHNSON K L & PARKER M M
324 W TRYON ST
HILLSBOROUGH NC 27278-2438

088 180 35 00 5
JOHNSON NATHANIEL
140 W LERDO HW
SHAFTER CA 93263

103 130 06 00 6
JORGE EDWARD P REVOCABLE
SEPARATE PROP TRUST
P O BOX 2201
ORCUTT CA 93457

103 100 18 00 2
KEYVAN FARMS LLC
PO BOX 82034
BAKERSFIELD CA 93380-2034

088 210 02 00 7
LA BRUCHERIE RONALD V
12953 SOUTH BAKER
ONTARIO CA 91761

088 190 01 01 8
LERDO HIGHWAY SHAFTER CA LP
1521 WESTBRANCH DR STE 100
MCLEAN VA 22102

103 120 31 00 5
M&C ROMANINI FAMILY L P
6605 MOUNT WHITNEY DR
BAKERSFIELD CA 93309

087 030 11 00 4
MANSTON GREGG
PO BOX 343
CLAREMONT CA 91711

087 030 12 00 7
MANSTON GREGG
P O BOX 343
CLAREMONT CA 91711

069 340 34 01 8
MARICOPA ORCHARDS LLC
5260 N PALM AV ML STP M STE 421
FRESNO CA 93704

087 060 24 00 1
MC ABEE WINTON & BARBARA
FAMILY TRUST
P O BOX 686
SHAFTER CA 93263-0686

100 020 07 00 6
MELIS CORP
4450 OLIVE AV
LONG BEACH CA 90807

087 060 10 00 0
MELO JAMES
1644 LANTANA DR
MINDEN NV 89423

088 180 16 01 9
NO OF RIVER SANITARY DIST 1
204 UNIVERSE AV
BAKERSFIELD CA 93308

088 210 06 00 9
NO RIVER SANITARY DIST #1 ETAL
5001 OLIVE DR
BAKERSFIELD CA 93308-2955

088 110 06 00 0
OASIS HOLSTEINS
18041 PALM AV
SHAFTER CA 93263-9533

088 150 01 00 7
OHANNESON SEC 23 FARMLAND LLC
PO BOX 22560
BAKERSFIELD CA 93390-2560

069 340 50 00 5
OROZCO JESUS
12340 TELEPHONE AV
CHINO CA 91710

087 060 29 00 6
PACIFIC GAS & ELECTRIC CO
1 MARKET PZ STE 400
SAN FRANCISCO CA 94105-1004

087 130 08 01 4
PALLA ALFRED JR & JANETTE
FAMILY TRUST
327 CORN CAMP RD
BUTTONWILLOW CA 93206-9729

088 190 37 00 4
PALLA DONALD & CATHERINE FAM
TRUST
6615 KANE WY
BAKERSFIELD CA 93309

088 110 05 01 6
PALLA DONALD & CATHERINE FMLY
TR
6615 KANE WY
BAKERSFIELD CA 93309

100 010 20 00 0
PARSONS BROS PTP
400 BUTTONWILLOW DR
BUTTONWILLOW CA 93206-9749

087 200 06 00 9
PARSONS BROTHERS PTP
400 BUTTONWILLOW DR
BUTTONWILLOW CA 93206

103 040 02 00 8
PORTWOOD PHILIP FAMILY TRUST
P O BOX 781
WASCO CA 93280

103 120 29 00 0
PROLOGIS
1800 WAZEE ST STE 500
DENVER CO 80202-2526

087 140 05 00 9
QUAILWOOD GROVES LLC
PO BOX 98
BUTTONWILLOW CA 93206-0098

103 030 36 00 4
RJSP ROMANINI AG PROP LLC
45600 HWY 58
BUTTONWILLOW CA 93206

087 010 20 00 4
ROMANINI FAMILY L P
PO BOX 786
BUTTONWILLOW CA 93206

087 020 01 00 2
ROMANINI FAMILY L P
12107 HURST PARK DR
BAKERSFIELD CA 93311

087 210 08 00 8
ROMANINI WILLIE EST TR
P O BOX 850
WASCO CA 93280

087 060 46 00 5
RY FARMS INC
10622 RYCROFT WY
BAKERSFIELD CA 93311-2959

103 120 25 00 8
SANDRIDGE PARTNERS L P
960 N SAN ANTONIO RD STE 114
LOS ALTOS CA 94022-1346

069 350 07 01 3
SEMITROPIC IMPVT DIST
PO BOX 8043
WASCO CA 93280-8137

088 180 04 01 4
SILL PROP INC
1508 18TH ST STE 320
BAKERSFIELD CA 93301

088 180 07 00 4
SILL PROPERTIES
1508 18TH ST RM 320
BAKERSFIELD CA 93301

100 010 07 00 3
SKY TO WALK HEALTHY LLC
20735 E MILL LN
DIAMOND BAR CA 91789-4071

087 010 14 00 7
SR RANCH LLC
2905 F ST
BAKERSFIELD CA 93301-1819

088 220 01 00 7
STATE OF CALIFORNIA
1416 NINTH ST
SACRAMENTO CA 95814

087 010 01 00 9
SYED ASARULISLAM MOHAMMED &
NAYLA ASAR
14404 VIA LA MERCED
BAKERSFIELD CA 93314

088 150 18 00 7
TISS DAVID L & CONNIE L REV
TRUST
32486 N WALKING HORSE LN
ATHOL ID 83801-6116

087 170 02 01 8
SAGE CREEK RANCH LLC
3430 UNICORN ST
BAKERSFIELD CA 93308

087 070 02 00 0
SANDRIDGE PARTNERS LP
960 N SAN ANTONIO RD STE 114
LOS ALTOS CA 94022-1346

087 130 29 00 6
SEMITROPIC IMPVT DIST
PO BOX Z
WASCO CA 93280

088 180 02 00 9
SILL PROPERTIES
1508 18TH ST STE 320
BAKERSFIELD CA 93301-4429

088 180 11 01 4
SILL PROPERTIES INC
1508 18TH ST STE 320
BAKERSFIELD CA 93301

087 060 42 00 3
SLIKKER 2012 LIVING TR
12001 APRIL ANN AV
BAKERSFIELD CA 93312-3624

100 010 13 00 0
STARRH FAMILY FARMS INC
P O BOX 1537
SHAFTER CA 93263

087 070 10 00 3
STITZINGER B L ET AL
6441 CAMILLE DR
HUNTINGTN BCH CA 92647

087 070 35 00 6
TAYAN REFAAT
25992 LERDO HWY
BUTTONWILLOW CA 93206

088 190 20 00 4
TJAARDA RANCHES LLC
19211 MAGNOLIA AV
SHAFTER CA 93263-9561

069 350 20 00 1
SANDRIDGE PARTNERS
960 N SAN ANTONIO RD STE 114
LOS ALTOS CA 94022-1346

069 340 72 00 9
SCROGGS ALAN & ELIZABETH
FAMILY TRUST
PO BOX 81678
BAKERSFIELD CA 93380-1678

069 350 29 00 8
SEMITROPIC WATER STORAGE DIST
P O BOX Z
WASCO CA 93280

088 180 06 01 0
SILL PROPERTIES
1508 18TH ST # 320
BAKERSFIELD CA 93301

069 340 27 01 8
SINGH DAYA & KAUR SATINDER
599 HWY 46
WASCO CA 93280

103 130 04 00 0
SOUTHERN CALIF EDISON CO
2244 WALNUT GROVE AV
ROSEMEAD CA 91770-3714

087 160 24 00 0
STATE OF CALIFORNIA
1807 13TH ST STE 103
SACRAMENTO CA 95814-7117

087 060 02 00 7
SWIFT STEVEN E & MARY A TR
P O BOX 111
TOUTLE WA 98649

100 010 21 00 3
THOMSON FMLY PROP LLC
9913 SUNSET BL
BAKERSFIELD CA 93307-8512

087 060 45 00 2
TKAC JON V & WENDY D FMLY TR
12309 APRIL ANN AV
BAKERSFIELD CA 93312-4610

100 100 03 01 6
TORETTA LTD I LP
P O BOX 565
BUTTONWILLOW CA 93206

087 010 08 00 0
TRACY RANCH INC
7540 TRACY AV
BUTTONWILLOW CA 93206-9742

087 040 04 00 7
TRACY ROBERT & ELIZABETH REV TR
P O BOX 505
BUTTONWILLOW CA 93206

103 100 37 00 7
UNION PACIFIC RAILROAD CO
1400 DOUGLAS ST
OMAHA NE 68179-1610

069 340 32 00 3
VANDER POEL BRIAN TR
18846 HIGHWAY 30
HAGERMAN ID 83332

069 340 36 00 5
VANDER POEL BRIAN TR
15147 MOORESVILLE PL
BAKERSFIELD CA 93314

088 150 19 00 0
VANDER POEL FAMILY TRUST
18846 HIGHWAY 30
HAGERMAN ID 83332

088 180 36 00 8
VILLALVAZO RAMON & MARIA J
140 W LERDO HW
SHAFTER CA 93263

069 340 71 00 6
WAGNER FAMILY TRUST
PO BOX 975
SHAFTER CA 93263-0975

087 090 04 00 2
WANG CHARLES
7035 STRATUS ST
EASTVALE CA 92880

069 350 08 01 6
WATERHOUSE & NEUFELD FAM TRUST
PO BOX 8014
WASCO CA 93280

087 010 21 00 7
WILDWOOD GROUP INC
2800 ROAD 136
DELANO CA 93215-9326

103 100 19 01 4
WILLOW AVENUE INVESTMENTS
P O BOX 5379
FRESNO CA 93755-5379

103 010 42 00 5
3&1 FARMS INC
6608 BRANDT RD
BUTTONWILLOW CA 93206-9537

Buttonbush Solar & Storage Project
Mineral Resources Notification

Tjaarda Ranches, LLC
19211 Magnolia Ave
Shafter, CA 93263

William Merritt Podley Trust
1701 Orlando Road
Pasadena, CA 91106

Kathleen P. Turner
28498 Spencer Creed Rd
Eugene, OR 97405

Gay T. Henderson SP Trust
Robin Ross-Dugan, Trustee
804 Camino Zozobra
Santa Fe, NM 87505

Annette Irene Thomas
438 Cerro Street
Encinitas, CA 92024

Mitchell Packard
PO Box 738
Tahoe City, CA 96145

Southern California Gas Company
P.O. Box 1626
Monterey Park, CA 91754-8626

Albert Fritsche
3351 East Ivyglen Circle
Mesa, AZ 85213

Maggie Schoeffler, Trustee
265 Foxen Bluff Lane
Arroyo Grande, Ca. 93420

Robert & Charlotte Brandt, Trustees
10300 Dutch Iris Dr.
Bakersfield, CA 93311

Pamela R. Winter
455 Havenside Avenue
Newbury Park, CA 91320

Wisnom Associates No II, Cal limited
61065 Chamomile Pl
Bend, OR 97702

Robert Romanini
335 Maple Street
Shafter, CA 93263

Susan Francis
820 E. 7th Avenue
Durango, CO 81301

Leland Stanford University
450 Jane Stanford Way
Stanford, CA 94305-2048

Romanini Family Trust
Anna Faye Romanini, Trustee
45720 Highway 58
Buttonwillow, CA 93206

Sheryl Simpson
2835 Campo Raso
San Clemente, CA 92673

Brd of Trustees of Leland Stanford Univ
450 Jane Stanford Way
Stanford, CA 94305-2048

Buttonwillow Ginning Co.
860 Corn Camp Rd.
Buttonwillow, CA 93206

Laura Reineman
32692 Watermelon Drive
Winchester, CA 92596

Myra R. Adams Trust
John C. Nielsen, Successor Trustee
6581 Dohrn Circle
Huntington Beach, CA 92647

Bryan D. and Linda A. Bone, Co-Trustees
411 Jewel Flower St.
Bakersfield, CA 93314

Aera Energy LLC
5600 California Avenue
Bakersfield, CA 93309

California Resources Production Corporation
11109 River Run Blvd
Bakersfield, CA 93311

Janet Campbell Moore, Trustee
1206 Fairmont Street
Cheswick, PA 15024

William M. McVicker
15510 North Jack Tone Road
Lodi, CA 95240

Nancy E. Courrielche
6301 Warner Ave. Space 28
Huntington Beach, CA 92647

Morgan E. Manning
10300 Equine Dr.
Sacramento CA 95829

Ryan William Jeffries and Bryan J. Boylan
1145 Fairway Drive
Bakersfield, CA 93309

Maryann Holman
6621 Pecan Ave
Moorepark, CA 93021

Mitchell Packard
PO Box 738
Tahoe City, CA 96145

Silver Sack, Trustee
1735 28th Street
Bakersfield, CA 93301

Frederick R. Coons
1372 Falstaff ln.
Gardnerville, NV 89410

Roger D. & Kathleen W. Daniels, Trustees
5549 Blossom Tree Lane
San Jose, CA 95124

John Dee Coons
350 Oliver Rd.
Santa Barbara CA 93109

Daniel F. Coons
100 Industrial Parkway
Moundhouse, NV 89706

Annette Irene Thomas
438 Cerro Street
Encinitas, CA 92024

Jan Lachenmaier, Trustee
261 Calle Esperanza
Santa Barbara, CA 93105

Gay T. Henderson SP Trust
Robin Ross-Dugan, Trustee
804 Camino Zozobra
Santa Fe, NM 87505

Lisa D. Murphy, MW
1411 Seabright Ave.
Grover Beach, CA 93433

A J L Enterprises
2265 W. Broadway, H204
Anaheim, CA 92804

James R. & Floy E. Ebaugh, Trustees
7721 Carmel Street
Gilroy, CA 95020

Sondra Jane Humble
973 Ben Drive
Springtown, TX 76082

California Polytechnic State University Foundation
1 Grand Avenue
San Luis Obispo, CA 93407

David and Dorian Buttacavoli, Trustees
4176 Lancaster Dr
Eugene, OR 97404

Lon V. Smith Foundation
9440 Santa Monica Blvd. #300
Beverly Hills, CA 90210

Kathyrn M. Jacobsen
P.O. Box 456
Durham, CA 95938

Victoria S. Aiken, Trustee
10215 Affirmed Land NE
Bainbridge Island, WA 98110

Patricia Morrow, Trustee
11851 Hesby St
North Hollywood, CA 91607

Jennifer D. Williams
2853 Sweetwater Fls
Chico, CA 95973

Salisbury Sisters Property LLC
1520 Black Oak Drive
Santa Maria, CA 93455

Lane Minerals LLC
14710 Beeler Canyon Road
Poway, CA 92064

David J. Jacobsen
PO Box 80966
Bakersfield, CA 93380

Jeffrey Stuart Jeanes & Kimberlee Jeanes
707 White Lane
Saint Helena, CA 94574

Nancy S. Russell, Trustee
1308 Mira Flores Glenn
Escondido, CA 92026

Patrick B. Coons
449 Lime Ave
Daytona Beach, FL 32124

Teri Senseney Woods
6281 N 31st Place
Phoenix, AZ 85016

H&D Est Artie Stevenson
John A. Stevenson
22 Saratoga
Newport Beach, CA 92660

Ruth Maxine McBride, SSP
7100 Cranbrook Avenue
Bakersfield, CA 93308

Sandy Senseney Cerelli
31897 Maxwell Lane
Arch Cape, OR 97102

H&D Est John M. Martin
Anne M. Thomson
4680 E Baseline Rd
Albion, IN 46701

H&D Est Fay Loraine Decker
Valerie Bergeron
7100 Cranbrook Avenue
Bakersfield, CA 93308

Richard Senseney
8163 NE Seaview Ave # 65
Indianola, WA 98342

Betty McVicker, Trustee
111 Sanders Lane
Riesel, Texas 76682

Trustee of The Bruce B. Paquette Trust
Aidan Coberly & Joan Bolton
5477 E. Hayden Lake Rd.
Hayden ID 83835

Thomas James Gorrell
1030 N. Richman Knls
Fullerton, CA 92835

The Bruce B. Paquette Trust
Chamberlain and Kevin Wright, Trustees
23866 Bothinia Bay
Dana Point, CA 92629

Est of Marjorie Weigel Gall
Sheryl Simpson
2835 Campo Raso
San Clemente, CA 92673

Trustee of The Debra Ann Calvert Trust
Debra Ann Calvert
48808 McFarland Rd.
Oakridge, OR 97463

Stephanie Lynn Green
P.O. Box 565
Cedar Glen, CA 92321

Kay Froemming Carpenter
4412 Dunwick Lane
Fort Worth, TX 76109

Margaret Gallagher Wilson
3460 Cazadero Hwy
Cazadero, CA 95421

Stacy Lee Beard
1683 Juniper Ave.
Solvang, CA 93463

The Herbert Frank Laird and Bertha Maude
Laird Oakland Scottish Rite Memorial
Education Foundation
1547 Lakeside Dr.
Oakland, CA 94612-4520

Bruce B. Paquette Trust FBO Morgan Jones
Leslie Wright Jones, Trustee
23862 Paseo Del Campo
Laguna Nigel, CA 92677

Lisa Mills Glenny
568 Valley Dairy Rd
Buellton, CA 93427

Richard Scott Salisbury &
Susan Jane Casper, Successor Trustees
13427 Trillium Lane
Oroville, CA 95965

Barnaby Conrad III, Duncan A. Chapman,
Wells Fargo Bank, and Winston S. Conrad
2101 Pacific Avenue, Apt 505
San Francisco, CA 94115

Leslie Wright Jones
23862 Paseo Del Campo
Laguna Nigel, CA 92677

Trustee of The Bruce B. Paquette Trust
Alexandra Coberly & Joan Bolton
5477 E. Hayden Lake Rd.
Hayden ID 83835

Kristine M. Thomsen
3700 Gracie Pl
Long View, WA 98632

Barbara Jean Anderson
44316 Acacia St.
Lancaster, CA 93535

Diana Stockton, Trustee
3042 White Sulphur Springs Rd
St. Helena, CA 94574

Robert Shelton & Caroline Wright
16-578 Old Volcano Road, #1569
Keaau, HI 96749

Brent Salisbury Bollinger Trust
Amy McConnell & Brent Bollinger
647 W. 2nd Ave.
Chico, CA 95926

Pamela Lewis Oles
7560 Balboa Rd.
Atascadero, CA. 93422

Jefferson Chandler Wright, Catherine
Velge, Barnhouse Farm, Barnhouse Lane,
Brookland, Romney Marsh Kent
TN29 9TR
United Kingdom

Trustee of The Bruce B. Paquette Trust
Jayke Coberly & Joan Bolton
5477 E. Hayden Lake Rd.
Hayden ID 83835

Peter C. Lewis
3964 Del Mar Ave.
San Diego, Ca 92107

Richard Wright
63277 South Rd.
Bend, OR 97703

Howard W. Wright, Jr.
480 Rose Lane
Friday Harbor, WA 98250

W. Jeff May, Trustee
P.O. Box 74
Pigeon Forge, TN 37863

Marian Merrell
2417 Via Sonoma
Palos Verdes Estates, CA 90274

William Wright
708 Angelus Pl.
Venice, CA 90291

Joanne Anderson Living Trust
3201 Golden Rain Road #3
Walnut Creek, CA 94595

Gore Brothers
2249 Princeton St.
Delano, CA 93215

Elizabeth Merrell & John Merrell
1221 W Coast Hwy, Apt 406
Newport Beach, CA 92663-5041

Jeffrey and Barbara Maxfield, Trustees
1004 Cedar St.
Calistoga, CA 94515

Leo Levy Est.
Gerald Freisleben, Trustee
16633 Ventura Blvd #1245
Encino, CA 91436-1873

Alan Stewart Jacobs, Trustee
28076 N River Rd
Prairie City, OR 97869

Geraldine Forrester
17337 Circa Del Sur
Rancho Santa Fe, CA 92067

Cynthia Hayes Carson Trust Peter Kote
Peter C. Kote, Trustee
280 Cajon Street
Laguna Beach, CA 92651

Jeffrey Ormont
27 Foxboro
Irvine, CA 92614

Wells Fargo Bank, Successor Trustee
420 Montgomery Street,
San Francisco, CA 94104

Penelope Ann Bryson Trust
Peter C. Kote, Trustee
280 Cajon Street
Laguna Beach, CA 92651

Lyche Family Survivor's Trust
101 New Place Rd.
Hillsborough, CA 94010

Alexandra Squiers
10549 Pinyon Ave
Tujunga, CA 91042

Black Stone Minerals Co.
1001 Fannin, Suite 2020
Houston, Texas 77002

Hardy Minerals
10295 N. Sterling Lane
Fresno, CA 93730

Vicki Morris
466 Seely Ave.
Aromas, CA 95004

Matagorda B1, LP
1001 Fannin, Suite 2020
Houston, Texas 77002

Josephine Shuman Trust
Josephine Schuman, Trustee
24220 Hillview Rd.
Los Altos, CA 94024

Roger Callahan, Trustee
14411 Cambridge St
Moorpark, CA 93021

H&D Est Ethel Chism
Andrea E. Cheeseman
3579 Ranch View Lane
Bishop, CA 93514

John R. Shuman Family GST Trust
Josephine Schuman, Trustee
24220 Hillview Rd.
Los Altos, CA 94024

Donald Fowler, Trustee
468 Rockport Cir
Folsom CA 95630

Edward and Susan Powers
1164 Say Road
Santa Paula, CA 93060

Easton Minerals
5645 Coe Estates Ct
Las Vegas, NV 89149

Donald & Susan Fowler, Trustees
468 Rockport Cir
Folson, CA 95630

Susan Skelley Scott, Tam Scott
393 County Road 102, Box C
Carbondale, CO 81623

Mark and Lori Admiral, Trustees
868 Ailuna St
Honolulu, HI 96821

H&D Est Blanche Rauch
Mike Rauch and Rene Holt
4675 Del Monte Ave, #220
San Diego, CA 92107

Joseph Skelley
5103 Panama Ave Apt A
Richmond, CA 94804

Elizabeth A. Donley and Mark Anglin Donley, Trustees
93346 Elk River Rd
Port Orford, OR 97465

Marilyn J. Weaver, Trustee
465 Red Sail Way
Satellite Beach, FL 32937

David Skelley
12509 W Palm Ln
Avondale, AZ 85392

Douglas Button
P.O. Box 149
Silt, CO 81652

Penelope Ann Bryson Trust
Peter C. Kote, Successor Trustee
280 Cajon Street
Laguna Beach, CA 92651

William Pratt
4286 La Canada Rd
Fallbrook, CA 92028

Constance Button
1008 Eggleston Street
Fort Collins, Colorado 80524

Cynthia Hayes Carson Trust
Peter C. Kote, Successor Trustee
280 Cajon Street
Laguna Beach, CA 92651

John E. and Susan S. Sullivan, Trustees
2184 Lakeside Dr
Lexington, KY 40502

Brent Button
14766 Toft Drive
Lake Elsinore, CA 92530

Barbra Tack
8416 Portafino Place
Whittier, CA 90603

P&O Fiske, LLC
131 Magazine St, Apt 2
Cambridge, MA 02139

Mark E. Erwin
784 N 500 E
Bringham City, UT 8402

Grumbles/Morris Trust
465 Red Sail Way
Satellite Beach, FL 32937

BMCWF Properties LLC
1320 Padre Drive Apt 355
Salinas, CA 93901

Dan T. Erwin
2009 NE Stephanie Ct
Blue Springs, MO 64014-1861

Edmund Rene Bangle
21011 Big Cypress Creek Trail
Humble, TX. 77338

A&D Property Service
297 NW Tracy Ave
Bremerton, WA 98311

Ruth Alice Strom, Virginia Smithers
John Strom, Esq.
3333 Claydor Dr
Beavercreek, OH 45431

Raymond Bangle, III
6490 Goya Way
El Dorado Hills, CA 95762

H&D Est Samuel Coughran
Monte Coughran and Thomas W. Coughran
1792 Avenida Regina
San Marcos, CA 92069"

John Woods Bersinger and Betty Louise
Bersinger AB Living Trust
Ken Bersinger
4120 Douglas Blvd #306-303
Granite Bay, CA 95661

Peter Suarez & Elena Suarez, Co-Trustees
3956 Avenida Verano
Thousand Oaks, CA 91360

Bryan Boylan
6500 Mount Shasta
Bakersfield, CA 93309

Michela Henry & Linda Jane Henry
14 Harbor Lane
East Hampton, NY 11937

John M. Wales
1061 Old Farm Rd
Watkinsville, GA 30607

Allen Westover
1400 Vancouver Ct.
San Jose, CA 95127

Grumbles/Morris Trust
465 Red Sail Way
Satellite Beach, FL 32937

Lauren Vietti
5950 Via Casitas
Carmichael, CA 95608

H&D Est Eloise Hendrickson O'Hern
315 Caelot Dr.
Oceanside, CA 92054

Sill Properties
1508 18th St. Suite 320
Bakersfield, CA 93301

Linda Goldenberg
5950 Via Casitas
Carmichael, CA 95608

H&D Est of Elizabeth B. Westover
58148 Yucca Trail
Yucca Valley, CA 92284

H&D Est Carol Grosskreutz
107 South Andrews Street
Shawano, WI 54166

John McWilliams Jr. Trust
Philadelphia Cousins, Successor Trustee
202 Bungalow Ave
San Rafael, CA 94901

Society of the Holy Transfiguration
Monastery
Father Pachomius
278 Warren St
Brookline, MA 02445

C.J. Howard & Helen Howard, H&W
42416 Old Stage Rd.
Posey, CA 93260

Logan Elliott Schroeder Trust
Megan Schroeder, Trustee
PO Box 132
Helotes, TX 78023

Stacia S. Ryder, PhD
2123 Taylor Ave
Ogden, UT 84401

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P. O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # 2024041028

Project Title: Buttonbush Solar and Storage Project by 29SC 8me, LLC.

Lead Agency: Kern County Planning and Natural Resources Department — Contact Person: Jack Foster

Mailing Address: 2700 "M" Street, Suite 100 — Phone: (661) 862-5010

City: Bakersfield — Zip: 93301 — County: Kern

Project Location: County: Kern — City/Nearest Community: Buttonwillow, Bakersfield, Shafter, Wasco

Cross Streets: See Below — Zip Code: 93249/ 93280/ 93206/ 93263/ 93314

Lat. / Long. : See Below — Total Acres: 11,983

Assessor's Parcel No.: Multi — Section: Multi — Township: Multi — Range: Multi — Base: MDB&M

Within 2 Miles: State Hwy #: I-5 and SR 58 — Waterways: N/A

Airports: N/A — Railways: Union Pacific Railroad — Schools: Buttonwillow Elementary

Document Type:

CEQA: ☐ NOP ☒ Draft EIR — NEPA: ☐ NOI — Other: ☐ Joint Document
☐ Early Cons ☐ Supplement/Subsequent EIR ☐ EA ☐ Final Document
☐ Neg Dec (Prior SCH No.) ☐ Draft EIS ☐ Other
☐ Mit Neg Dec Other ☐ FONSI

Local Action Type:

☐ General Plan Update ☒ Specific Plan ☐ Rezone ☐ Annexation
☒ General Plan Amendment ☐ Master Plan ☐ Prezone ☐ Redevelopment
☐ General Plan Element ☐ Planned Unit Development ☒ Use Permit ☐ Coastal Permit
☐ Community Plan ☐ Site Plan ☐ Land Division (Subdivision, etc.) ☒ Other: WALUC/FSZC

Development Type:

☐ Residential: Units ____ Acres ____
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☐ Commercial: Sq.ft. ____ Acres ____ Employees ____
☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
☐ Educational ____
☐ Recreational ____

☐ Water Facilities: Type ____ MGD ____
☐ Transportation: Type ____
☐ Mining: Mineral ____
☒ Power: Type Solar PV MW 2,000
☐ Waste Treatment: Type ____ MGD ____
☐ Hazardous Waste: Type ____
☒ Other: Battery Energy Storage Systems (BESS) 16,000 MWh/ 16 GWh

Project Issues Discussed in Document:

☒ Aesthetic/Visual ☒ Fiscal ☐ Recreation/Parks ☒ Vegetation
☒ Agricultural Land ☒ Flood Plain/Flooding ☒ Schools/Universities ☒ Water Quality
☒ Air Quality ☒ Forest Land/Fire Hazard ☒ Septic Systems ☒ Water Supply/Groundwater
☒ Archeological/Historical ☒ Geologic/Seismic ☒ Sewer Capacity ☒ Wetland/Riparian
☒ Biological Resources ☒ Minerals ☒ Soil Erosion/Compaction/Grading ☒ Wildlife
☐ Coastal Zone ☒ Noise ☒ Solid Waste ☒ Growth Inducing
☒ Drainage/Absorption ☐ Population/Housing Balance ☒ Toxic/Hazardous ☒ Land Use
☒ Economic/Jobs ☒ Public Services/Facilities ☒ Traffic/Circulation ☒ Cumulative Effects
☒ Other GHG, Wildfire, Tribal Cultural Resources, Energy

Present Land Use / Zoning / General Plan Designation

Agricultural Land / A (Exclusive Agriculture) / Various General Plan Designations

Project Description

The proposed Buttonbush Solar and Storage Project as proposed by 29SC 8me, LLC. would allow for the construction and operation of a photovoltaic (PV) solar facility with the associated infrastructure on 7 proposed project sites that would collectively generate up to 2,000 megawatts (MW) or 2 gigawatts (GW) of renewable electrical energy including a battery energy storage system (BESS) with the capacity of storing approximately 16,000 megawatt-hours (MWh) or 16 gigawatt-hours (GWh) on approximately 11,983 acres across 128 privately owned parcels in an unincorporated area of northwestern Kern County. Implementation of the proposed project includes requests for multiple General and Specific Plan Amendments (GPAs/SPAs), Conditional Use Permits (CUPs), the cancellation of Williamson Act Land Use and Farmland Security Zone Contracts (WALUC/FSZC), and Non-Summary Street Vacations (NSV) from the Kern County Planning & Natural Resources Department. The several separate sites of the proposed Project are entirely located within unincorporated Kern County, directly north of the community of Buttonwillow, approximately four miles west of the City of Bakersfield, two miles west of the City of Shafter, and seven miles southwest of the City of Wasco. The proposed Project straddles and crosses Interstate 5 (I-5) and is east of Buttonwillow Raceway Park, north of State Route (SR) 58, and south of Kimberlina Road.

Cross Streets

Site 1: Wasco Way and Sullivan Road

Site 2: Seventh Standard and Buttonwillow Drive

Site 3: Seventh Standard and North Corn Camp Road

Site 4: Rowlee Road and Burbank Street

Site 5: Brandt Road and Sullivan Road

Site 6: Seventh Standard and Magnolia Ave

Site 8: Rowlee Road and Lerdo Hwy

Lat. / Long

Site 1: 35.42336, -119.44934

Site 2: 35.44527, -119.49277

Site 3: 35.46435, -119.51071

Site 4: 35.46659, -119.48178

Site 5: 35.42121, -119.35420

Site 6: 35.46037, 119.36347

Site 8: 35.52215, -119.47882

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".
If you have already sent your document to the agency please denote that with an "**S**".

X	Air Resources Board		Office of Emergency Services
	Boating & Waterways, Department of		Office of Historic Preservation
X	California Highway Patrol		Office of Public School Construction
	CalFire		Parks & Recreation
X	Caltrans District # 6		Pesticide Regulation, Department of
	Caltrans Division of Aeronautics	X	Public Utilities Commission
	Caltrans Planning (Headquarters)	X	Regional WQCB # Central Valley
	Central Valley Flood Protection Board		Resources Agency
	Coachella Valley Mountains Conservancy		S.F. Bay Conservation & Development Commission
	Coastal Commission		San Gabriel & Lower L.A. Rivers and Mtns Conservancy
	Colorado River Board		San Joaquin River Conservancy
X	Conservation, Department of		Santa Monica Mountains Conservancy
	Corrections, Department of		State Lands Commission
	Delta Protection Commission		SWRCB: Clean Water Grants
	Education, Department of		SWRCB: Water Quality
	Energy Commission		SWRCB: Water Rights
X	Fish & Game Region # Fresno		Tahoe Regional Planning Agency
X	Food & Agriculture, Department of	X	Toxic Substances Control, Department of
	General Services, Department of		Water Resources, Department of
	Health Services, Department of		
	Housing & Community Development		Other _____
	Integrated Waste Management Board		Other _____
	Native American Heritage Commission		

Local Public Review Period (to be filled in by lead agency)

Starting Date November 18th, 2025 Ending Date January 2nd, 2026

Lead Agency (Complete if applicable):

Consulting Firm: _____ Applicant: _____
Address: _____ Address: _____
City/State/Zip: _____ City/State/Zip: _____
Contact: _____ Phone _____
Phone: _____

Signature of Lead Agency Representative: _____ 11/18/2025

Jack Foster, Planner II

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

Draft Environmental Impact Report

SCH# 2024041028

Volume 1

Chapters 1 through 11

BUTTONBUSH SOLAR AND STORAGE PROJECT

by 29SC 8me, LLC.

(PP24407)

Site 1
CUP No. 17, Map 98; CUP No. 19, Map 98;
CUP No. 25, Map 99; GPA No. 4, Map 98;
SPA No. 5, Map 98; GPA No. 8, Map 99;
Williamson Act Land Use Contract Cancellations;
Farmland Security Zone Contract Cancellation;
Non-Summary Vacation, Map 99

Site 2
CUP No. 14, Map 77; CUP No. 20, Map 77;
CUP No. 18, Map 98; GPA No. 10, Map 77;
Williamson Act Land Use Contract Cancellations

Site 3
CUP No. 15, Map 77; GPA No. 11, Map 77;
Williamson Act Land Use Contract Cancellations

Site 4
CUP No. 16, Map 77; GPA No. 12, Map 77;
Williamson Act Land Use Contract Cancellation

Site 5
CUP No. 26, Map 99; CUP No. 27, Map 99;
CUP No. 28, Map 99; CUP No. 61, Map 100;
GPA No. 10, Map 99; GPA No. 31, Map 100;
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Site 6
CUP No. 17, Map 78; GPA No. 10, Map 78;
Williamson Act Land Use Contract Cancellations

Site 8
CUP No. 12, Map 54; CUP No. 17, Map 77;
CUP No. 18, Map 77; CUP No. 19, Map 77;
GPA No. 1, Map 54; GPA No. 13, Map 77;
Williamson Act Land Use Contract Cancellations

Kern County
Planning and Natural Resources Department
Bakersfield, CA

November 2025

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Chapter 1

Executive Summary

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Chapter 1
Executive Summary

1.1 Introduction

The Buttonbush Solar and Storage Project (proposed Project) proposed by 29SC 8me LLC (Project proponent) requires Kern County's approval of multiple general and specific plan amendments, Conditional Use Permits (CUPs), and cancellation of Williamson Act Land Use and Farmland Security Zone Contracts, and public access easement vacations for the construction and operation of a commercial-scale solar photovoltaic (PV) and battery energy storage facility on mostly agricultural lands. The proposed Project consists of seven sites (Site 1 through 6, and Site 8) that would enable a total combined generation of up to 2 gigawatts (GW) of renewable electrical energy with a combined 2 GW battery energy storage system (BESS) capable of storing approximately 16,000 megawatt hours (MWh) of energy on approximately 11,983 project acres of privately owned land across 128 parcels of land. As described in the Notice of Preparation (NOP), the original proposed Project previously consisted of a total of eight sites. The previously proposed Site 7 has since been withdrawn, and no analysis regarding Site 7 has been included in this Draft Environmental Impact Report (EIR).

Kern County (County), as the Lead Agency under the California Environmental Quality Act (CEQA), prepared this Draft EIR. This Draft EIR provides information about the environmental setting and impacts of the proposed Project and alternatives. It informs the public about the proposed Project and its impacts and provides information to meet the needs of local, state, and federal permitting agencies that are required to consider the proposed Project. The County will use the Final EIR resulting from this Draft EIR to determine whether to approve the requested CUPs, associated plan amendments, cancellations of Farmland Security Zone and Williamson Act Land Use Contracts, and public access easement vacations based on any significant environmental effects of the proposed Project. Additionally, this Draft EIR will identify possible ways to mitigate impacts and outline reasonable alternatives to the proposed Project.

Chapter 1, *Executive Summary*, summarizes the CEQA Statute and Guidelines, provides an overview of the proposed Project, outlines the potential impacts of the proposed Project and the recommended mitigation measures, and discloses areas of controversy and issues to be resolved.

1.2 Project Summary

The proposed Project would include the construction and operation of a commercial-scale solar PV and battery energy storage facility on mostly agricultural lands within Kern County. The proposed Project's permanent facilities (Sites 1 through 6, and Site 8) would include solar panels, solar racking, inverters, service roads, a power collection system, communication cables, microwave towers, met stations, overhead and underground transmission lines, electrical switchyards, project

substations, BESS(s), and operations and maintenance (O&M) facilities. The proposed Project involves a 500-kV, overhead gen-tie and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at the Pacific Gas & Electric (PG&E) Midway Substation. PG&E will modify the Midway Substation's 500 kV yard, within PG&E's Midway Substation property boundary, to accommodate the proposed Project's interconnection. The proposed Project includes the following discretionary actions for the Buttonbush Solar and Storage Project, by site. (See Chapter 3, *Project Description,* **Figures 3-2 A–F:** *Project Site Boundaries;* **Figures 3-4 A–E:** *Circulation Element Amendments;* **Figure 3-8:** *Williamson Act Land Use Cancellations*; and **Figures 3-13 A and B:** *Easement Vacation Site 1 & 5*.)

1.2.1 Site 1

Conditional Use Permits

- CUP No. 17 Map 98 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 1 generating capacity of 441 megawatts (MW), and approximately 4,000 MWh of energy storage, on approximately 1,300 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.
- CUP No. 19 Map 98 to allow for the construction and operation of a microwave tower on approximately 77 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.F of the Kern County Zoning Ordinance.
- CUP No. 25 Map 99 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 1 generating capacity of 441 MW, and approximately 4,000 MWh of energy storage, on approximately 989 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.

General/Specific Plan Amendments

- General Plan Amendment (GPA) Number (No.) 4, Map 98 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below.
    - A portion of the Section line between Section 1, T29 S R23 E, and Section 2, T29 S R23 E MDB&M
    - A portion of the north-south mid-section line of Section 1, T29 S R23 E MDB&M within the proposed Project boundary
    - A portion of the east-west mid-section line of Section 1, T29 S R23 E MDB&M
    - The north half of the Section line between Section 11, T29 S R23 E MDB&M, and Section 12, T29 S R23 E MDB&M
    - The north half of the east half of the east-west mid-section line of Section 11, T29 S R23 E MDB&M

  - The north half of the north-south mid-section line of Section 12, T29 S R23 E MDB&M
  - The north half of the east-west mid-section line of Section 12, T29 S R23 E MDB&M
- Specific Plan Amendment (SPA) No. 5, Map 98 to the Circulation Element of the Buttonwillow Community Development Specific Plan to remove future road reservations on the section and mid-section lines as described below.
  - The south half of the Section line between Section 11, T29 S R23 E MDB&M, and Section 12, T29 S R23 E MDB&M
  - The south half of the east half of the east-west mid-section line of Section 11, T29 S R23 E MDB&M
  - The south half of the north-south mid-section line of Section 12, T29 S R23 E MDB&M
  - The south half of the east-west mid-section line of Section 12, T29 S R23 E MDB&M
- GPA No. 8, Map 99 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below.
  - A portion of the Section line between Section 6, T29 S R24 E MDB&M and Section 7, T29 S R24 E MDB&M within the Project boundary
  - The west half of the east-west mid-section line of Section 6, T29 S R24 E MDB&M
  - A portion of the south half of the north-south mid-section line of Section 6, T29 S R24 E MDB&M
  - The mid-section lines of Section 7, T29 S R24 E MDB&M
  - A portion of the Section line between Section 7, T29 S R24 E MDB&M and Section 8, T29 S R24 E MDB&M

Williamson Act Land Use Contract Cancellations

- Williamson Act Land Use Contract Cancellation (WALUCC) No. 24-03 by Hill Ranch Group, LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 310 acres of a Land Use Contract (Recorded Document Number 0197173644).
- WALUCC No. 24-04 by Hill Ranch Group, LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 237 acres of a Land Use Contract (Recorded Document Number 0197173645).
- WALUCC No. 24-18 by Starrh Ranch LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 158 acres of a Land Use Contract (Recorded in Book 4272, Page 947).
- WALUCC No. 24-27 by Ainhoa Land Holdings LP, on behalf of 29SC 8me LLC, for the cancellation of approximately 142 acres of a Land Use Contract (Recorded in Book 4640, Page 687).

- WALUCC No. 24-28 by The Philip Portwood Family Trust, on behalf of 29SC 8me LLC, for the cancellation of approximately 631 acres of a Land Use Contract (Recorded in Book 4640, Page 687).
- WALUCC No. 24-33 by Starrh Ranch LLC, on behalf of 29SC 8me, for the cancellation of approximately 358 acres of a Land Use Contract (Recorded in Book 5008, Page 800).

Farmland Security Zone Contract Cancellations

- Farmland Security Zone Contract Cancellation No. 24-05 by Toretta LTD I, LP, on behalf of 29SC 8me LLC, for the cancellation of approximately 235 acres of a Farmland Security Zone Contract (Recorded Document Number 0214158124).

Public Access Street Vacation

- A portion of County Road 136, per County Road Record No. 136 at Page 16, north of Sullivan Road.

1.2.2 Site 2

Conditional Use Permits

- CUP No. 14 Map 77 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 2 generating capacity of 93 MW, and approximately 1,600 MWh of energy storage, on approximately 412 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.
- CUP No. 20 Map 77 to allow for the construction and operation of a microwave tower on approximately 80 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.F of the Kern County Zoning Ordinance.
- CUP No. 18 Map 98 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 2 generating capacity of 93 MW, and approximately 1,600 MWh of energy storage, on approximately 132 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.

General Plan Amendment

- GPA No. 10, Map 77 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below.
    - The south half of the Section line between Section 33, T28 S R23 E MDB&M and Section 34, T28 S R23 E MDB&M
    - The east half of the east-west mid-section line of Section 33, T28 S R23 E MDB&M
    - The east half of the north-south mid-section line of Section 33, T28 S R23 E MDB&M

- A portion of the west half of the south half of the north-south mid-section line of Section 33, T28 S R23 E MDB&M

Williamson Act Land Use Contract Cancellations

- WALUCC No. 24-07 by Palla Alfred Jr & Janette Family Trust et al, on behalf of 29SC 8me LLC, for the cancellation of approximately 35 acres of a Land Use Contract (Recorded Document Number 0205320977).
- WALUCC No. 24-08 by Bittleston Allan & Lynda Revocable Trust, on behalf of 29SC 8me LLC, for the cancellation of approximately 128 acres of a Land Use Contract (Recorded Document Number 0210065031).
- WALUCC No. 24-26 by Louis Andreotti Jr, on behalf of 29SC 8me LLC, for the cancellation of approximately 80 acres of a Land Use Contract (Recorded in Book 4640, Page 637).
- WALUCC No. 24-34 by Bonnie & Davie Bloemhof LLC et al, on behalf of 29SC 8me LLC, for the cancellation of approximately 160 acres of a Land Use Contract (Recorded in Book 5737, Page 2231).

1.2.3 Site 3

Conditional Use Permit

- CUP No. 15 Map 77 to allow for the construction and operation of a commercial-scale solar facility with a Site 3 generating capacity of 108 MW on approximately 644 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.

General Plan Amendment

- GPA No. 11, Map 77 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below.
  - A portion of the west half of the south half of the north-south mid-section line of Section 33, T 28S R23 E MDB&M
  - The west half of the north half of the north-south mid-section line of Section 33, T28 S R23 E MDB&M
  - The west half of the east-west mid-section line of Section 33, T28 S R23 E MDB&M
  - The Section line between Section 28, T28 S R23 E MDB&M and Section 29, T28 S R23 E MDB&M
  - A portion of the east half of the east-west mid-section line of Section 29, T28 S R23 E MDB&M within the Project boundary
  - The west half of the east-west mid-section line of Section 28, T28 S R23 E MDB&M

- A portion of the south half of the north-south mid-section line of Section 28, T28S R23 E MDB&M

Williamson Act Land Use Contract Cancellations

- WALUCC No. 24-22 by Fred Palla Farms Inc, on behalf of 29SC 8me LLC, for the cancellation of approximately 120 acres of a Land Use Contract (Recorded in Book 4372, Page 832).
- WALUCC No. 24-26 by Louis Andreotti Jr, on behalf of 29SC 8me LLC, for the cancellation of approximately 80 acres of a Land Use Contract (Recorded in Book 4640, Page 637).
- WALUCC No. 24-29 by Palla Alfred Jr. & Janette Family Trust et al, on behalf of 29SC 8me LLC, for the cancellation of approximately 195 acres of a Land Use Contract (Recorded in Book 4640, Page 849).
- WALUCC No. 24-30 by Houchin Wallace & Janice Family Trust, on behalf of 29SC 8me LLC, for the cancellation of approximately 160 acres of a Land Use Contract (Recorded in Book 4771, Page 47).
- WALUCC No. 24-32 by Sage Creek Ranch LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 89 acres of a Land Use Contract (Recorded in Book 4883, Page 396).

1.2.4 Site 4

Conditional Use Permit

- CUP No. 16 Map 77 to allow for the construction and operation of a commercial-scale solar facility with a Site 4 generating capacity of 38 MW on approximately 395 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.

General Plan Amendment

- GPA No. 12, Map 77 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below.
  - Portions of the mid-section lines of Section 27, T28 S R 23 E MDB&M within the Project boundary

Williamson Act Land Use Contract Cancellations

- WALUCC No. 24-25 by A J Parsons & Family LTD PTP, on behalf of 29SC 8me LLC, for the cancellation of approximately 395 acres of a Land Use Contract (Recorded in Book 4495, Page 483).

1.2.5 Site 5

Conditional Use Permits

- CUP No. 26 Map 99 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 5 generating capacity of 404 MW, and approximately 4,800 MWh of energy storage, on approximately 2,302 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.
- CUP No. 27 Map 99 to allow for the construction and operation of a microwave tower on approximately 153 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.F of the Kern County Zoning Ordinance.
- CUP No. 28 Map 99 to allow for the construction and operation of a microwave tower on approximately 318 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.F of the Kern County Zoning Ordinance.
- CUP No. 61 Map 100 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 5 generating capacity of 404 MW, and approximately 4,800 MWh of energy storage, on approximately 375 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.

General Plan Amendments

- GPA No. 10, Map 99 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below.
    - The Section line between Section 1, T29 S R24E MDB&M and Section 2, T29 S R 24E MDB&M
    - A portion of the west half of the east-west mid-section line of Section 1, T 29 S R24 E MDB&M within the Project boundary
    - The mid-section lines of Section 2, T29 S R24 E MDB&M
    - The south half of the Section line between Section 11, T29 S R24 E MDB&M and Section 12, T29 S R24 E MDB&M
    - The mid-section lines of Section 11, T29 S R24E MDB&M
    - The mid-section lines of Section 12, T29 S R24 E MDB&M
    - The west half of the Section line between Section 12, T29 S R24 E MDB&M and Section 7, T29S R25 E MDB&M
    - The Section line between Section 11, T29 S R24 E MDB&M and Section 14, T29 S R24 E MDB&M
    - The north half of the north-south mid-section line of Section 14, T29 S R24 E MDB&M
    - The west half of the east-west mid-section line of Section 14, T29 R24 E MDB&M

  - The north half of the north-south mid-section line of Section 13, T29 S R24 E MDB&M
  - The Section line between Section 12, T29 S R24 E MDB&M and Section 13, T29 S R24 E MDB&M
  - The north half of the Section line between Section 13, T29 S R24 E MDB&M and Section 14, T29 S R24 E MDB&M
- GPA No 31, Map 100 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below.
  - The east half of the Section Line between Section 12, T29S R24 E MDB&M and Section 7, Township 29S R25 E MDB&M
  - The west half of the east-west mid-section line of Section 7, T29 S R25 E MDB&M
  - The north half of the north-south mid-section line of Section 7, T29 S R25 E MDB&M

Williamson Act Land Use Contract Cancellations

- WALUCC No. 24-09 by Affentranger Farms LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 136 acres of a Land Use Contract (Recorded Document Number 0195144320).
- WALUCC No. 24-10 by 3&1 Farms Inc, on behalf of 29SC 8me LLC, for the cancellation of approximately 75 acres of a Land Use Contract (Recorded Document in Book 4165, Page 883).
- WALUCC No. 24-14 by Bushnell Jon R & Julia Bushnell Family Trust, on behalf of 29SC 8me LLC, for the cancellation of approximately 79 acres of a Land Use Contract (Recorded in Book 4249, Page 941).
- WALUCC No. 24-23 by Affentranger Farms LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 318 acres of a Land Use Contract (Recorded in Book 4491, Page 96).
- WALUCC No. 24-24 by Affentranger Ranches, on behalf of 29SC 8me LLC, for the cancellation of approximately 398 acres of a Land Use Contract (Recorded in Book 4493, Page 418).
- WALUCC No. 24-37 by Affentranger Farms LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 494 acres of a Land Use Contract (Recorded in Book 6085, Page 0877).
- WALUCC No. 24-38 by Affentranger Ranches, on behalf of 29SC 8me LLC, for the cancellation of approximately 617 acres of a Land Use Contract (Recorded in Book 6085, Page 0888).
- WALUCC No. 24-39 by Affentranger Ranches, on behalf of 29SC 8me LLC, for the cancellation of approximately 320 acres of a Land Use Contract (Recorded in Book 6085, Page 0897).

- WALUCC No. 24-40 by Affentranger Brothers, on behalf of 29SC 8me LLC, for the cancellation of approximately 241 acres of a Land Use Contract (Recorded in Book 6992, Page 1078).

Public Access Easement Vacation

- Portions of public access easements created by Parcel Map 1201.

1.2.6 Site 6

Conditional Use Permit

- CUP No. 17 Map 78 to allow for the construction and operation of a commercial-scale solar facility with a Site 6 generating capacity of 453 MW, and approximately 4,800 MWh of energy storage, on approximately 2,409 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.

General Plan Amendment

- GPA No 10, Map 78 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below.
  - The west half of the east-west mid-section line of Section 23, T28 S R24 E MDB&M
  - A portion of the south half of the north-south mid-section line of Section 23, T28 S R24 E MDB&M within the Project boundary
  - The north half of the north-south mid-section line of Section 25, T28 S R24 E MDB&M
  - The north-south mid-section line of Section 26, T28 S R24 E MDB&M
  - A portion of the east-west mid-section line of Section 26, T28 S R24 E MDB&M within the Project boundary
  - The south half of the north-south mid-section line of Section 27, T28 S R24 E MDB&M
  - The Section line between Section 27, T28 S R24 E MDB&M and Section 34, T28 S R24 E MDB&M
  - The mid-section lines of Section 34, T28 S R24 E MDB&M
  - The north half of the north-south mid-section line of Section 35, T28 S R24 E MDB&M
  - The Section line between Section 26, T28 S R24 E MDB&M and Section 35, T28 S R24 E MDB&M

Williamson Act Land Use Contract Cancellations

- WALUCC No. 24-02 by Sill Properties Inc, on behalf of 29SC 8me LLC, for the cancellation of approximately 635 acres of a Land Use Contract (Recorded Document Number 218162800).
- WALUCC No. 24-17 by Sill Properties Inc, on behalf of 29SC 8me LLC, for the cancellation of approximately 39 acres of a Land Use Contract (Recorded in Book 4272, Page 884).
- WALUCC No. 24-20 by Tjaarda Ranches LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 318 acres of a Land Use Contract (Recorded in Book 4371, Page 254).
- WALUCC No. 24-21 by Ohanneson Section 23 Farmland, LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 352 acres of a Land Use Contract (Recorded in Book 4371, Page 367).
- WALUCC No. 24-31 by Sill Properties Inc, on behalf of 29SC 8me LLC, for the cancellation of approximately 297 acres of a Land Use Contract (Recorded in Book 4827, Page 1330).

1.2.7 Site 8

Conditional Use Permits

- CUP No. 12 Map 54 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 8 generating capacity of 463 MW, and approximately 800 MWh of energy storage, on approximately 589 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.
- CUP No. 17 Map 77 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 8 generating capacity of 463 MW, and approximately 800 MWh of energy storage, on approximately 2,436 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.
- CUP No. 18 Map 77 to allow for the construction and operation of a microwave tower on approximately 235 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.F of the Kern County Zoning Ordinance.
- CUP No. 19 Map 77 to allow for the construction and operation of a microwave tower on approximately 543 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.F of the Kern County Zoning Ordinance.

General Plan Amendments

- GPA No. 1, Map 54 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below.
    - The east half of the Section line between Section 28, T27 S R23 E MDB&M and Section 33, T27 S R23 E MDB&M

- The east half of the east-west mid-section line of Section 33, T27 S R23 E MDB&M
- A portion of the Section line between Section 33, T27 S R23 E MDB&M and Section 34, T23 S R23 E MDB&M
- The north half of the east half of the Section line between Section 33, T27 S R23 E MDB&M and Section 4, T28 S R23 E MDB&M
- The north half of the portion of the Section line between Section 34, T27 S R23 E MDB&M and Section 3, T28 S R23 E MDB&M within the Project boundary
- A portion of the north-south mid-section line of Section 34, T27 S R23 E MDB&M within the Project boundary

- GPA No. 13, Map 77 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below.
  - A portion of the north-south mid-section line of Section 1, T28 S R23 E MDB&M within the Project boundary
  - The west half of the east-west mid-section line of Section 1, T28 S R23 E MDB&M
  - The south half of the Section line between Section 34, T27 S R23 E and Section 3, T28 S R23 E within the Project boundary
  - The mid-section lines of Section 3, T28 S R23 E MDB&M
  - The south half of the east half of the Section line between Section 33, T27 S R23 E MDB&M and Section 4, T28 S R23 E MDB&M
  - The Section line between Section 3, T28 S R23 E MDB&M and Section 4 T28 S R23 E MDB&M
  - A portion of the east half of the east-west mid-section line of Section 4, T28 S R23 E MDB&M within the Project boundary
  - A portion of the west half of the east-west mid-section line of Section 4, T28 S R23 E MDB&M within the Project boundary
  - A portion of the north-south mid-section line of Section 4, T28 S R23 E MDB&M within the Project boundary
  - A portion of the Section line between Section 4, T28 S R23 E MDB&M and Section 5, T28 S R23 E MDB&M
  - The mid-section lines of Section 5, T28 S R 23 E MDB&M
  - A portion of the Section line between Section 11, T28S R23 E MDB&M and Section 12, T28 S R23 E MDB&M within the Project boundary
  - A portion of the north-south mid-section line of Section 11, T28 S R23 E MDB&M within the Project boundary
  - A portion of the east-west mid-section line of Section 11, T28S R23 E MDB&M within the Project boundary

Williamson Act Land Use Contract Cancellations

- WALUCC No. 24-11 by Gooselake Holding Co, on behalf of 29SC 8me LLC, for the cancellation of approximately 543 acres of a Land Use Contract (Recorded in Book 4247, Page 680).
- WALUCC No. 24-12 by Gooselake Holding Co, on behalf of 29SC 8me LLC, for the cancellation of approximately 885 acres of a Land Use Contract (Recorded in Book 4247, Page 783).
- WALUCC No. 24-13 by Gooselake Holding Co, on behalf of 29SC 8me LLC, for the cancellation of approximately 435 acres of a Land Use Contract (Recorded in Book 4248, Page 434).
- WALUCC No. 24-15 by Tracy Ranch Inc, on behalf of 29SC 8me LLC, for the cancellation of approximately 374 acres of a Land Use Contract (Recorded in Book 4251, Page 457).
- WALUCC No. 24-16 by Tracy Ranch Inc, on behalf of 29SC 8me LLC, for the cancellation of approximately 45 acres of a Land Use Contract (Recorded in Book 4251, Page 529).
- WALUCC No. 24-19 by B&E Romanini Investments LP and Romanini Family LP, on behalf of 29SC 8me LLC, for the cancellation of approximately 287 acres of a Land Use Contract (Recorded in Book 4370, Page 306).
- WALUCC No. 24-35 by Tracy Ranch Inc, on behalf of 29SC 8me LLC, for the cancellation of approximately 206 acres of a Land Use Contract (Recorded in Book 5845, Page 1410).
- WALUCC 24-36 by Gooselake Holding Co, on behalf of 29SC 8me LLC, for the cancellation of approximately 83 acres of a Land Use Contract (Recorded in Book 5845, Page 1419).

1.2.8 Discretionary Entitlements Required

The Kern County Planning and Natural Resources Department as the Lead Agency (according to CEQA Guidelines Section 15052) for the proposed Project has staff responsibility for the preparation of the Draft EIR and recommendations to the decision makers on the proposed Project. To implement the proposed Project, the Project applicant may need to obtain discretionary and ministerial entitlements/approvals including, but not limited to, the following:

County of Kern

- Certification of Final EIR
- Adoption of 15091 Findings of Fact and 15093 Statement of Overriding Considerations
- Adoption of Mitigation Monitoring and Reporting Program
- Approval of Conditional Use Permits to allow for the construction and operation of a commercial-scale solar facility within A (Exclusive Agriculture) Zone District.

- Approval of Conditional Use Permits to allow for the construction and operation of microwave towers within A (Exclusive Agriculture) Zone District
- Approval of Kern County General Plan and Buttonwillow Development Specific Plan Amendment (Circulation Element)
- Approval of Williamson Act Land Use Contract and Farmland Security Zone Contract cancellations for approximately 10,689 acres
- Approval of Grading Permits
- Approval of Kern County Building Permits
- Approval of Franchise Agreement(s)
- Approval of Kern County Access Road Design and Encroachment Permits
- Approval of Fire Safety Plan
- Approval of proposed non-summary public access easement vacations
- Approval of Demolition permits and site remediation for Dairy Removal
- San Joaquin Valley Air Pollution Control District
    - Approval of Fugitive Dust Control Plan/ ISR 9510
    - Authority to Construct (ATC)
    - Permit to Operate (PTO)

Responsible and Trustee Agency Entitlements

In addition to the above discretionary approvals from the County, it may be necessary to obtain other discretionary entitlements and/or approvals from other public agencies with jurisdiction over aspect(s) of the proposed Project. This Draft EIR is also intended for use by responsible and trustee agencies or other agencies that may have jurisdiction, approval authority or environmental review and consultation requirements for the proposed Project, including:

Federal

- U.S. Fish and Wildlife Service (USFWS) Section 10 Incidental Take Permit and Habitat Conservation Plan (if required)
    - United States Army Corps of Engineers Section 404 Permit (if required)

State

- California Public Utilities Commission (CPUC)
    - Approval under General Order 131-E (if required)
- California Department of Fish and Wildlife (CDFW)

  - Section 1600 et seq. permits (Lake and Streambed Alteration Agreements) (if required)
  - Section 2081 Permit (State-listed or candidate species) (if required)
- Central Valley Water Quality Control Board (RWQCB)
  - Waste Discharge Requirements (if required)
  - Regional Water Quality Certification (401 Permit) (if required)
  - National Pollution Discharge Elimination System (NPDES) Construction General Permit
  - General Construction Stormwater Permit (Preparation of a SWPPP)
- California Department of Transportation (Caltrans)
  - Right-of-Way Encroachment Permit (if required)
  - Permit for Transport of Oversized Loads
  - Crossing consents for I-5 gen-tie crossing (if required)
  - Crossing consents for SR 58 gen-tie crossing (if required)

Other applicable entitlements or approvals from responsible and/or trustee agencies may be required for the proposed Project.

1.3 Relationship of the Proposed Project to Other Solar Projects

The proposed Project is being developed independently of other approved or proposed solar projects in the County. If approved, the project facilities would be subject to their own use permits, conditions of approval, interconnection agreements, and power purchase agreements. Kern County understands that the Project facilities would be built and operated independently of any other solar project and, if approved, would not depend on any other solar project for economic viability.

1.4 Purpose and Use of the Draft EIR

An EIR is a public-information document that is used for planning and decision-making. This Project-level Draft EIR analyzes the environmental impacts of the proposed Project. The Kern County Planning Commission and Board of Supervisors will consider the information in this Draft EIR, including public comments and staff responses to those comments, during the public hearing process. The Kern County Board of Supervisors will make a final decision, which may be to approve, conditionally approve, or deny the proposed Project.

The purpose of the Draft EIR is to identify the following:

- The significant potential impacts of the proposed Project on the environment and how these impacts can be avoided or mitigated

- Unavoidable adverse impacts that cannot be mitigated
- Reasonable and feasible alternatives to the proposed Project that would eliminate any significant adverse environmental impacts or reduce the impacts to a less than significant level

An EIR also discloses growth-inducing impacts, impacts found not to be significant, and significant cumulative impacts of past, present, and reasonably anticipated future projects. CEQA requires preparation of an EIR that reflects the independent judgment of the Lead Agency regarding the impacts, the level of significance of the impacts both before and after mitigation, and mitigation measures proposed to reduce the impacts.

An EIR is circulated to Responsible Agencies, Trustee Agencies, and interested agencies and individuals. Public and agency review of an EIR serves several purposes:

- Sharing expertise
- Disclosing agency analyses
- Checking for accuracy
- Detecting omissions
- Discovering public concerns
    - Soliciting counterproposals

Reviewers of a Draft EIR are requested to focus on the sufficiency of the document in identifying and analyzing the possible environmental impacts and ways in which the significant impacts of a project might be avoided or mitigated. Comments are most helpful when they suggest additional specific alternatives or mitigation measures that would provide better ways to avoid or mitigate significant environmental effects.

This Draft EIR is being distributed directly to agencies, organizations, and interested groups and people for comment during a 45-day formal review period in accordance with Section 15087 of the CEQA Guidelines. The EIR process, including how members of the public can comment on this Draft EIR, is discussed further in Chapter 2, *Introduction*.

1.5 Project Overview

This section describes the local and regional setting, surrounding land uses, project objectives, and project characteristics. The proposed Project is described in further detail in Chapter 3, *Project Description*.

1.5.1 Regional Setting

The Project site is located in the southern portion of the San Joaquin Valley in the valley region of Kern County, specifically in proximity to Interstate 5 (I-5), Highway 58, and Highway 46. The Project site is located directly north of the community of Buttonwillow, approximately four miles

west of the City of Bakersfield, two miles west of the City of Shafter, and approximately seven miles southwest of the City of Wasco. The proposed Project straddles and crosses Interstate 5 (I-5) and is east of Buttonwillow Raceway Park, north of State Route (SR) 58, and south of Kimberlina Road. The Project site is located on mostly flat terrain and currently used/developed for: agriculture and, rural residential uses; and to a lesser degree, oil and gas operations and vacant undisturbed land designated for agricultural use.

1.5.2 Surrounding Land Use and Project Site Conditions

Existing land uses surrounding the Project site consist of large agricultural parcels occupied by agricultural and rural residential development. Most of the existing agriculture uses are crop production. Additionally, an existing dairy is located within the proposed Project site (Site 6) at 19211 Magnolia Avenue. Removal of the dairy will be necessary before construction of that portion of Site 6. The zoning classification surrounding the Project site is predominantly A (Exclusive Agriculture). One single-family dwelling unit is allowed per legal lot and, consequently, there is low-density, rural residential development within the proposed Project vicinity. In addition, residential development (mostly single-family dwellings) are clustered within the unincorporated community of Buttonwillow, south and west of Site 1. The nearest school is Buttonwillow Elementary School, located approximately one mile (at the closest point) southwest of Site 1 at 42600 Highway 58 Buttonwillow, California 93206. The Buttonwillow Recreation and Park District manages a park and facilities on properties along State Route (SR) 58, Milo Avenue, and Meadow Street in the eastern portion of Buttonwillow, approximately 420 feet (at the closest point) to the west of the Pacific Gas & Electric (PG&E) Midway Substation.

Surrounding lands have the following Kern County General Plan (KCGP) map code designations: 4.1 (Accepted Community Plan Area); 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size); 8.1/2.3 (Intensive Agriculture, Min. 20-Acre Parcel Size/Shallow Groundwater); 8.3 (Extensive Agriculture, Min. 20-acre parcel size); 8.4 (Mineral and Petroleum, Min. 5-Acre Parcel Size); 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size); 6.3 (Highway Commercial); and 7.2 (Service Industrial) as illustrated in **Table 1-1:** *Existing Project Site and Surrounding Existing Land Use, General Plan Map Code Designations, and Zoning*). As stated above, these map code designations guide future development pursuant to the regulations in Chapter 19.12 of the Kern County Zoning Ordinance (KCZO). **Table 1-2:** *Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, Williamson Act Status, and Project Parcel Acreage by Site,* below, provides project Assessor Parcel Numbers, existing map codes, existing zoning, Williamson Act status, and parcel acreage by site.

Table 1-1: Existing Project Site and Surrounding Existing Land Use, General Plan Map Code Designations, and Zoning

Location	Existing Land Use	Existing General Plan Map Code Designation	Existing Zoning Classification
Project Site	Active Agriculture Activities, Tjaarda Dairy, Vacant Open Space, Rural Residences, Canals, and Irrigation Ponds	*Kern County General Plan:* 2.3 (Shallow Groundwater) 4.1 (Accepted Community Plan Area) 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size) 8.3 (Extensive Agriculture, Min. 20-Acre Parcel Size) 8.4 (Mineral and Petroleum, Min. 5-Acre Parcel Size) 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size) *Buttonwillow Community Development Plan:* Agriculture	A (Exclusive Agriculture)
North	Active Agriculture Activities, Vacant Open Space, Rural Residences, County Landfill, Highway 46	*Kern County General Plan* 8.1 (Intensive Agriculture, min. acre parcel size) 8.1/2.3 (Intensive Agriculture, Min. 20-Acre Parcel Size) 8.3 (Extensive Agriculture, Min. 20-Acre Parcel Size) 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size)	A (Exclusive Agriculture)
East	Active Agriculture Activities, Dairies, Oil and Gas Production, City of Shafter, Rural Residences, Highway 43	*Kern County General Plan* 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size) 8.1/2.3 (Intensive Agriculture, Min. 20-Acre Parcel Size/Shallow Groundwater) 8.3 (Extensive Agriculture, Min. 20-Acre Parcel Size) 8.5 (Resource Management, Min. 20- or 80-Acre Parcel)	A (Exclusive Agriculture), A-1 (Limited Agriculture), C-2 PD (General Commercial, Precise Development), M-2 PD (Medium Industrial, Precise Development)
South	Active Agriculture Activities, Community of Buttonwillow, Community of Rio Bravo, Rural Residences, Industrial Activities, Closed Landfill, State Route 58	*Kern County General Plan* 4.1 (Buttonwillow Community Development Plan) 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size) 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size) *Buttonwillow Community Development Plan*: Park Public Utility Residential Agricultural Light Industrial Sanitary Landfill	A (Exclusive Agriculture) A-1 (Limited Agriculture) R-1 (Low-Density residential) R-2 (Medium-Density Residential) C-2 (General Commercial) M-1 (Light Industrial) M-2 (Medium Industrial) E (Estate)

Table 1-1: Existing Project Site and Surrounding Existing Land Use, General Plan Map Code Designations, and Zoning

Location	Existing Land Use	Existing General Plan Map Code Designation	Existing Zoning Classification
West	Active Agriculture land, Undisturbed Vacant Open Space, Raceway, Industrial Activities, Rural Residences, Interstate 5	Kern County General Plan 6.3 (Highway Commercial) 7.2 (Service Industrial) 8.1 (Intensive Agriculture Min 20-Acre Parcel Size) 8.3 (Intensive Agriculture Min. 5-Acre Parcel Size) 8.4 (Mineral and Petroleum) 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size)	A (Exclusive Agriculture), A-1 (Limited Agriculture)

Table 1-2: Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, Williamson Act Status, and Project Parcel Acreage by Site

APN	Zone Map	Existing Map Code Designation	Existing Zoning	Williamson Act Status	Project Parcel Acreage
Site 1					
100-010-13	98	8.1/8.4	A	Active	224*
100-010-14	98	8.1	A	Active	50
100-010-22	98	8.1	A	Active	85*
100-100-03	98	8.1/8.4	A	Active	158
100-100-04	98	4.1 (Exclusive Agriculture)	A	N/A	3
100-100-05	98	4.1 (Exclusive Agriculture)	A	Active	38
100-100-06	98	4.1 (Exclusive Agriculture)	A	Active	39
100-100-07	98	4.1 (Exclusive Agriculture)	A	Active	39
100-100-08	98	4.1 (Exclusive Agriculture)	A	Active	20
100-100-09	98	4.1 (Exclusive Agriculture)	A	Active	20
100-100-10	98	4.1 (Exclusive Agriculture)	A	Active	158
100-100-19	98	8.1	A	Active	78
100-100-26	98	8.1	A	Active	78*
100-100-27	98	4.1 (Exclusive Agriculture)	A	Active	76
100-100-29	98	4.1 (Exclusive Agriculture)	A	Active	78*
100-100-31	98	8.1	A	Active	78
100-100-32	98	8.1	A	Active	80
				Subtotal Site 1, Zone Map 98:	**1,300**
103-030-45	99	8.1	A	Active	55
103-030-46	99	8.1/8.4	A	Active	87
103-040-02	99	8.1	A	Active	156
103-040-08	99	8.1/8.4	A	N/A	74*
103-040-14	99	8.1/8.4	A	Active	159
103-040-24	99	8.1/8.4	A	Active	158
103-100-01	99	8.1/8.4	A	Active	119
103-100-02	99	8.1/8.4	A	Active	39
103-100-23	99	8.1	A	N/A	40*
103-120-30	99	8.5	A	N/A	103

Table 1-2: Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, Williamson Act Status, and Project Parcel Acreage by Site

APN	Zone Map	Existing Map Code Designation	Existing Zoning	Williamson Act Status	Project Parcel Acreage
				Subtotal Site 1, Zone Map 99:	**989**
				Subtotal Site 1:	**2,289**
Site 2					
087-200-02	77	8.1	A	Active	160
087-200-03	77	8.1	A	N/A	80
087-200-05	77	8.1	A	Active	41
087-200-16	77	8.1	A	Active	2*
087-200-28	77	8.1	A	Active	3*
087-200-29	77	8.1	A	Active	10
087-200-30	77	8.1	A	N/A	10
087-200-31	77	8.1	A	Active	8*
087-200-37	77	8.1	A	N/A	47
087-200-39	77	8.1	A	Active	40
087-200-54	77	8.1	A	Active	12*
				Subtotal Site 2, Zone Map 77:	**412**
100-020-19	98	8.5	A	Active	128*
100-030-08	98	8.1	A	N/A	4
				Subtotal Site 2, Zone Map 98:	**132**
				Subtotal Site 2:	**543**
Site 3					
087-160-01	77	8.1	A	Active	160
087-160-19	77	8.1	A	Active	80
087-170-04	77	8.1	A	Active	67*
087-170-12	77	8.1	A	Active	120
087-170-13	77	8.1	A	Active	20*
087-200-35	77	8.1	A	Active	195

Table 1-2: Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, Williamson Act Status, and Project Parcel Acreage by Site

APN	Zone Map	Existing Map Code Designation	Existing Zoning	Williamson Act Status	Project Parcel Acreage
087-210-10	77	8.1	A	Active	2*
				Subtotal Site 3:	**644**
Site 4					
087-160-53	77	8.1	A	Active	395
				Subtotal Site 4:	**395**
Site 5					
103-010-18	99	8.1	A	Active	31
103-010-19	99	8.1	A	Active	32
103-010-20	99	8.1	A	Active	31
103-010-21	99	8.1	A	Active	16
103-010-25	99	8.1	A	Active	104
103-010-28	99	8.1	A	Active	153
103-010-30	99	8.1	A	Active	16
103-010-31	99	8.1	A	Active	32
103-010-32	99	8.1	A	Active	94
103-010-39	99	8.1	A	Active	13*
103-010-40	99	8.1	A	Active	27*
103-010-43	99	8.1	A	Active	75*
103-060-04	99	8.1	A	Active	79*
103-060-05	99	8.1	A	Active	318
103-060-08	99	8.1	A	Active	78
103-060-09	99	8.1	A	Active	2
103-060-10	99	8.1	A	Active	240
103-060-11	99	8.1	A	Active	160
103-060-12	99	8.1	A	Active	160
103-070-07	99	8.1	A	Active	160
103-070-08	99	8.1	A	Active	160

Table 1-2: Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, Williamson Act Status, and Project Parcel Acreage by Site

APN	Zone Map	Existing Map Code Designation	Existing Zoning	Williamson Act Status	Project Parcel Acreage
103-070-13	99	8.1	A	Active	40
103-070-14	99	8.1	A	Active	40
103-070-15	99	8.1	A	Active	40
103-070-16	99	8.1	A	Active	40
103-070-17	99	8.1	A	Active	40
103-070-18	99	8.1	A	Active	40
103-070-19	99	8.1	A	Active	80
				Subtotal Site 5, Zone Map 99:	**2,302**
104-050-01	100	8.1	A	Active	217
104-050-08	100	8.1	A	Active	158
				Subtotal Site 5, Zone Map 100:	**375**
				Subtotal Site 5:	**2,677**
Site 6					
088-150-01	78	8.1	A	Active	352*
088-180-02	78	8.1	A	Active	317
088-180-04	78	8.1	A	N/A	58
088-180-06	78	8.3	A	N/A	70
088-180-07	78	8.3	A	N/A	10
088-180-10	78	8.1	A	Active	119
088-180-11	78	8.1	A	Active	39
088-180-12	78	8.1	A	Active	117
088-180-34	78	8.1	A	Active	61
088-190-20	78	8.1	A	Active	318
088-210-01	78	8.1	A	Active	318
088-220-15	78	8.1	A	N/A	50
088-220-16	78	8.3	A	N/A	158
088-220-17	78	8.1	A	N/A	235

Table 1-2: Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, Williamson Act Status, and Project Parcel Acreage by Site

APN	Zone Map	Existing Map Code Designation	Existing Zoning	Williamson Act Status	Project Parcel Acreage
088-220-19	78	8.1	A	N/A	40
088-220-20	78	8.1	A	N/A	35
088-220-21	78	8.1	A	N/A	20
088-220-22	78	8.1	A	N/A	40
088-220-23	78	8.1	A	N/A	5
088-220-24	78	8.1	A	N/A	5
088-220-25	78	8.1	A	N/A	5
088-220-31	78	8.1	A	N/A	20
088-220-32	78	8.1	A	N/A	17
				Subtotal Site 6:	**2,409**
Site 8					
069-340-28	54	8.1/2.3	A	Active	120
069-350-07	54	8.1/2.3	A	N/A	154*
069-350-09	54	8.1/2.3	A	Active	315*
				Subtotal Site 8, Zone Map 54:	**589**
087-010-11	77	8.1/(8.1/2.3)	A	Active	78
087-010-18	77	8.1	A	Active	60
087-010-20	77	8.1	A	Active	80
087-010-22	77	8.1	A	Active	66
087-020-01	77	8.1	A	Active	80
087-040-01	77	8.1/2.3	A	Active	374*
087-040-04	77	8.1/2.3	A	N/A	3
087-040-07	77	8.1/(8.1/2.3)	A	Active	543*
087-050-18	77	(8.1/2.3)/8.4	A	Active	118
087-050-28	77	8.1/2.3	A	Active	11
087-050-29	77	8.1/(8.1/2.3)	A	Active	345*
087-050-38	77	8.1/(8.1/2.3)	A	Active	37
087-060-01	77	8.5	A	Active	39
087-060-05	77	8.1	A	Active	20

Table 1-2: Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, Williamson Act Status, and Project Parcel Acreage by Site

APN	Zone Map	Existing Map Code Designation	Existing Zoning	Williamson Act Status	Project Parcel Acreage
087-060-06	77	8.1	A	Active	5
087-060-07	77	8.1	A	Active	5
087-060-08	77	8.1	A	Active	10
087-060-09	77	8.1	A	N/A	10
087-060-11	77	8.1	A	Active	40
087-060-12	77	8.1	A	Active	20
087-060-13	77	8.1	A	Active	20
087-060-14	77	8.1/8.5	A	Active	235
087-060-15	77	8.5	A	Active	99
087-060-39	77	8.1	A	Active	136
				Subtotal Site 8, Zone Map 77:	**2,436**
				Subtotal Site 8:	**3,025**
				PROJECT TOTAL ACREAGE:	**11,983**

Notes:
*Only a portion of parcel would be developed
Map Code Designations: 2.3 - Shallow Groundwater; 4.1 - Accepted Community Plan Areas (Buttonwillow Community Development Plan); 8.1, Intensive Agriculture (Min. 20-Acre Parcel Size); 8.3 - Extensive Agriculture (Min. 5-Acre Parcel Size); 8.4 - Mineral and Petroleum (Min. 5-Acre Parcel Size); 8.5 - Resource Management (Min. 20- or 80- Acre Parcel Size)
Zoning Classification: A (Exclusive Agriculture)

1.5.3 Applicant Submitted Project Objectives

The CEQA Guidelines Section 15124(b) requires that a proposed Project description includes a clearly written statement of objectives. The statement of objectives should include the underlying purpose of the proposed Project and may discuss the proposed Project benefits. The following objectives have been identified for the proposed Project:

- Provide the State of California with a renewable energy source that would assist the State of California in complying with the Renewables Portfolio Standard (RPS) under Senate Bill (SB) 350 (2015), which requires that 50% of all electricity sold in the state to be generated from renewable energy sources by December 31, 2030. SB 100 was approved in September 2018 and would increase the RPS to a 100% goal by 2045.
- Establish a large-scale solar PV and battery energy storage facility in a manner that maximizes the production of reliable electricity in an economically feasible and commercially financeable manner that can be marketed to different power utility companies or other off-takers of energy.
- Expand the reach of renewable energy development through the development of BESSs, making solar more valuable by storing energy after sunset and placing it on the grid when demand peaks.
- Provide energy to the electric grid to meet increasing demand for in-state generation.
- Provide revenues that help support public services within Kern County.
- Assist the County in continuing the goal in the Energy Element of its General Plan to develop large-scale solar energy development as a major energy source in the County.
- Promote economic development and bring jobs to the region throughout the life of the proposed Project.
- Support California's efforts to reduce greenhouse gas (GHG) emissions consistent with the timeline established in 2006 under California Assembly Bill 32, the Global Warming Solutions Act of 2006, which requires the California Air Resources Board to reduce statewide emissions of GHGs to at least the 1990 emissions level by 2020. This timeline was updated in 2016 under SB 32, which requires that statewide GHG emissions be reduced to at least 40 percent below the statewide GHG emissions limit by 2030.
- Support California's aggressive RPS Program consistent with the timeline established by SB 100 (De León, also known as the "California Renewables Portfolio Standard Program: emissions of greenhouse gases") as approved by the California Legislature and signed by Governor Brown in September 2018, which established a 50 percent RPS goal by December 31, 2026, 60 percent by December 31, 2030, and a goal that 100 percent of electric retail sales to end-use customers be provided by renewable energy and zero-carbon resources by 2045.
- Utilize historically farmed lands that would otherwise be fallowed due to significant water shortages, thereby providing local farmers owning those lands an alternative to the economic losses associated with limiting their production.

1.5.4 Proposed Project Characteristics

The proposed Project includes the development of a solar facility and associated infrastructure with the capacity to generate up to 2 GW of electricity through solar power derived from either fixed-tilt or tracker technology and up to 2 GW, or 16,000 MWh, of BESS capacity. As discussed above, the proposed facilities would be located on 128 privately owned parcels covering approximately 11,983 acres in the southern portion of Kern County. The proposed Project consists of seven sites (Site 1 through 6 and Site 8), and the sites and layout are shown in **Figure 1-1:** *Project Site Boundaries*. Each site is displayed in further detail in **Figures 3-2 (A–F):** *Project Site Boundaries* [*Site 1, Sites 2, 3, and 4, Site 5, Site 6, Site 8*] located in Chapter 3, *Project Description*. The proposed facilities include the following components, each of which are described in greater detail below:

- PV modules
- Collection (underground and or above ground), inverters, and transformer systems
- BESS
- On-site meteorological stations
- On-site substations
- PG&E Midway Substation upgrades
- Microwave/radio towers
- Generation-transmission lines (including underground and aboveground optical ground wire), and gen-tie line Caltrans crossing at the I-5 and SR-58
- Use of on-site water wells and water storage tank(s)
- Operations and maintenance buildings
- 12 kilovolt (kV) distribution line for permanent power to the operation and maintenance (O&M) buildings
- Project site security, internal roadways, and fencing
- Project site lighting

Photovoltaic Modules and Trackers

The proposed Project would use photovoltaic panels or modules on mounting frameworks to convert sunlight directly into electricity. Individual panels would be installed on either fixed-tilt or tracker mount systems (single- or dualaxis, using steel or aluminum). The solar array fields would be arranged in groups called “blocks” with inverter stations generally located centrally within the blocks. Photovoltaic energy would be delivered via cable to inverter stations, generally located near the center of each block of solar panels, to convert the direct current energy to alternating current (AC) energy to be dispatched to the transmission system. Power Converter Stations (PCS) would be comprised of one or more inverter modules with a rated power of up to 10 MW each, a unit

transformer, and voltage switch gear. The unit transformer and voltage switch gear would be housed in steel enclosures, while the inverter module(s) would be housed in cabinets. Depending on the vendor selected, the inverter station may lie within an enclosed or canopied metal structure, typically on a skid or concrete pad.

Energy from the inverter stations would be transferred to the Project substation(s) by overhead or underground 34.5kV collector lines. Collector lines may be bundled together as they approach the substation(s), sharing common trenches or poles. Collector lines would connect to the substation bus bar before being stepped up to a higher voltage for transmission. Transmission lines between Project substations would typically carry electricity at voltages between 230kV and 500kV.

Trackers

If the panels are configured for fixed tilt, the panels would be oriented toward the south. For tracking configurations, the panels would rotate to follow the sun over the course of the day. Although the panels could stand up to 20 feet high, depending on the mounting system used and on County building codes, panels are typically between 1 and 9 feet high.

The trackers would use small motors to adjust the PV modules' panel orientation to optimize power production by angling the panels toward the sun throughout the day as well as adjusting for seasonal variations. Metal posts (piles) driven into the ground with a pile driving machine would support the tracking system and PV modules. The location of the piles would be determined using a precise survey and then laid out to ensure proper positioning of the tracker assembly parts. A bearing assembly that supports and allows proper movement/orientation of the torque tube assembly will be affixed to the top of each pile. The balance of the assembly consists of the tracking drive system and torque tube assembly that adjusts the orientation of the attached PV panel. The pile support would be adequate to support the weight of the assembly and strong enough to manage the system through its daily range of motions.

Panels

The photovoltaic (PV) modules are made of semiconductor material encapsulated in glass in which the photovoltaic effect converts light (photons) into electrical current. Photovoltaics are best known as a method for generating electric power by using solar cells to convert energy from the sun into electricity. Energy from the sun is transmitted to the Earth as photons, which contain different levels of energy corresponding to different frequencies of the solar spectrum. When a photon is absorbed by a PV cell, the energy of the photon is transferred to an electron in an atom within the PV cell.

The panels are enclosed in frames to provide structural rigidity and support to the panels and mounted on steel support posts that are pile-driven into the ground. The PV panels would be self-contained, durably constructed units designed to withstand exposure to the elements for a period of 35 years or longer. The solar modules deployed for this proposed facility would be certified to comply with industry standard quality testing and would be electrically connected to the grid through the on-site substation, gen-tie line, and the existing PG&E Midway Substation, described further below. All improvements would be made in accordance with local and state codes and

regulations. The final panel selection would be determined at the detailed project-engineering phase and per market availability.

Inverter Skids

The proposed solar facility requires inverters, transformers, and other electrical equipment. Within the proposed solar arrays there would be inverter skids, also known as PCS, that would contain at a minimum one inverter and one transformer. Inverters are usually housed within an enclosed structure, which helps to reduce the resulting operational noise levels. PCS would also likely include an exhaust fan, and could include a heating, ventilation, and air conditioning (HVAC) system, which is typically mounted to the exterior of the enclosure. Each inverter and transformer would be installed as per manufacturer's requirements.

Battery Energy Storage System

The proposed solar facility will include AC-coupled BESSs in up to eight locations, located at or near a substation/switchyard (on-site or shared) and/or at the inverter stations. The collective BESS would be up to 2 GW in capacity and up to 550 acres in total area, not to exceed 5 percent of the Project site. The BESS would consist of modular and scalable battery packs and battery control systems that conform to U.S. national safety standards.

The BESS solutions would include commercially available lithium-ion–based or non-lithium-ion–based storage technologies. The actual dimensions and number of energy storage modules and structures would vary depending on the application, supplier, and configuration chosen, as well as an off-taker/power purchase agreement requirements and County building standards. These storage technologies typically consist of standard sized battery containers (approximately 40 feet in length by 8 feet in width by 9 feet in height) set on a concrete pad or driven post foundations, combined with transformers and controls systems. The BESS equipment may also be housed in a dedicated building(s) in compliance with applicable regulations. The maximum height of a dedicated structure will not exceed 25 feet.

The BESS solutions would be unmanned, remotely controlled, and periodically inspected for maintenance purposes. The BESS solutions would be designed to conform with Kern County and national BESS fire standard National Fire Protection Association 855, would have all required Underwriters Laboratories (UL) 9540A reports, and would be certified to UL9540, if required. Starting approximately five years after original installation, the Project proponent may be required to install additional battery modules and enclosures to augment lost storage capacity, which occurs with battery usage. BESS augmentation would occur within areas designated for BESS, as shown on the site plans, and would ensure the proposed Project can maintain the full energy storage capacity approved under the proposed Project. BESS augmentation would not result in increased storage capacity beyond the amount approved under the CUPs.

On-Site Meteorological Station

One or more solar meteorological stations would be on-site, the location of which would be determined in final project design. The meteorological station would include solar energy (irradiance) meters, in addition to an air temperature sensor and wind anemometer. The maximum height of this equipment would be 20 feet.

Electrical Collection

The power generated on-site would be fed to the proposed Project substation(s) likely through a 34.5- and 230kV power collection system. The transmission poles would accommodate the underground feeder splice lines to the overhead lines and would vary in height but be no taller than 160 feet. The likely materials for the poles would be wood, non-reflective metal, and/or spun concrete. These overhead lines would be carried via new and existing electrical poles to one or more substations. Underground transmission lines (if necessary) and fiber-optic lines would be co-located with roads.

Underground collection cables would be installed in conjunction with roads and panel arrays within the Project site, connecting each PCS to a feeder circuit; each feeder circuit would in turn be connected to the substations. Overhead circuits could be used to avoid environmentally sensitive areas or other constraints that are inherent to the Project site. The different solar panel circuits would gather at the substations (or switchyard) and would then be sent to the overhead electricity lines leading to a grid interconnection point.

Generation-Tie Line

The proposed Project involves a 500-kV, overhead gen-tie and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at the Pacific Gas & Electric (PG&E) Midway Substation. PG&E will modify the Midway Substation's 500 kV yard, within PG&E's Midway Substation property boundary, to accommodate the proposed Project's interconnection. The Gen-tie route would be sized up to 500 kV and up to 15 miles in length. The collector lines would be located generally within or adjacent to the proposed Project site and may connect several parcels to a Project substation. Both collector lines and gen-tie alternatives would use up to a 200-foot-wide corridor. The collector lines from the proposed parcel cluster to the main proposed substation would be sized at a voltage ranging from 34.5kV to 500 kV, with 34.5kV and 230 kV being likely voltages. Overhead lines would be mounted on Tubular Steel Poles no taller than 200 feet.

Substation

Output from the inverter stations would be transferred via electrical conductors to one or more on-site substation(s) or switchyard(s) (collectively referred to as a "substation" herein). Underground and/or overhead collector lines would cross I-5 in several locations, depending on the final substation location(s). Each substation may contain several components, including auxiliary power transformers, distribution cabinets, revenue metering systems, microwave transmission towers, and

voltage switch gear. Each substation would occupy an area of approximately 10 to 25 acres, secured separately by an additional chain-link fence, and typically located along the perimeter of the proposed Project. The final location(s) would be determined before issuance of building permits.

Equipment at the proposed Project substations would include transformers, bus work, switches, breakers, and all associated equipment required to be compliant with utility-grade interconnection services. The substations would include a small control enclosure (roughly 500 square feet) standing approximately 10 feet tall. The enclosure would be either prefabricated concrete or steel housing with rooms for the voltage switch gear and the metering equipment, a room for the station supply transformer, and a separate control technology room in which the main computer, the intrusion detection system, and the main distribution equipment would be housed. Components of this enclosure (for example, control technology room and intrusion detection system) may alternatively be located at the O&M building(s).

PG&E Midway Substation Upgrades

The applicant has submitted interconnection requests to the California Independent System Operator Corporation for the proposed Project that would interconnect to PG&E's Midway Substation. PG&E's Midway Substation is bounded by agricultural fields to the north, south, and east and a recreation/sports field to the west, all in the unincorporated area of Buttonwillow in Kern County.

To accommodate the requests, PG&E proposes to enlarge Midway Substation's 500 kV yard within the PG&E owned Midway Substation property boundaries. The PG&E Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities as part of the proposed Project. To support the proposed Project's communication infrastructure, PG&E may install two, 4-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest. This fiber-optic line is critical for the safe and efficient operation of the proposed Project. The fiber-optic line route will be trenched underground from the Midway Substation to the Point of Change of Ownership. It is anticipated that the first conduit path will exit the existing PG&E Midway Substation near the northwest corner of the fence corner, continue west for approximately 300 feet before turning north for approximately 1,400 feet, and then terminate at the Point of Change of Ownership. It is anticipated that the second conduit path will emerge from the substation out of the north fence approximately 160 feet from the northwest corner of the substation, route north for approximately 60 feet before heading west for approximately 500 feet, then turn north for approximately 1,400 feet, and then terminate at the proposed Project Point of Change of Ownership. Minor route modifications may be required at the time of construction due to unanticipated constraints. PG&E will install up to nine underground substructure vaults along the conduit trenches to support pulling the cable, housing excess cable storage, and supporting cable splice locations if required. The approximately 3-foot by 5-foot by 4.5-foot vaults will be installed along each conduit path between the Midway Substation and the Point of Change of Ownership. The trench will be backfilled with a layer of fluidized thermal concrete (red in color) with another layer of a diggable low PSI fluidized thermal backfill.

PG&E proposes to remove the existing precast security wall at the northwest side of the Midway Substation and replace it with a new 12-foot wall, similar in appearance and material, approximately 510 feet north and 140 feet west of the existing walls of the 500 kV yard within the Midway Substation. Grading of the connection area may be required and prior to any ground-disturbing activities. PG&E would acquire all necessary approvals from the California Public Utilities Commission. Within the proposed graded area of the Midway Substation, PG&E would install approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker. This would include installing equipment foundations and concrete trenches, equipment cabinets, bus structures, communication lines, conduits, pull boxes, and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, PG&E would install up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from Midway Substation to the Point of Change of Ownership for the proposed Project. Up to four, approximately 175-foot-tall, lattice steel towers or tubular steel poles would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads.

PG&E estimates that up to four, 6-person crews working approximately 10-hour days, six days per week, would construct the Midway Substation upgrades. Access would typically be from existing paved or previously disturbed roads; some minor overland travel may be required to install the underground fiber-optic line. Equipment typically includes helicopter, crane, drill rig, spool and tensioning rigs, backhoe, grader, concrete truck, typical rubber-wheeled construction vehicles, and miscellaneous hand tools.

Microwave Radio Tower

The proposed Project may require redundant telecommunication connections. If so, the primary telecommunication line would consist of fiber-optic cable and/or copper telecommunication line installed above and/or below ground and attached to either existing utility lines located outside of the Project site or within the new gen-tie.

The interconnection utility service would consist of fiber stranded cables (Dielectric Self Supporting and Optical Ground Wire) connected to the substations as part of the standard substation design criteria. Below ground installations would be installed 24 to 48 inches below grade. Above ground lines would be placed below existing distribution lines or on new, adjacent wooden poles. Telecommunication lines also would be attached to the new gen-tie line. A secondary (backup) internet connection would be provided using a similar method for redundant paths. The site also would have internal facility telecommunications that a local provider in the area would provide.

Up to six microwave/communication towers are proposed in six locations within the proposed Project. Separate CUPs are required for each microwave tower location and included in the proposed Project's entitlement request. Each microwave/communication tower consists of up to three, 6-foot-high performance microwave dish(es) fixed to a steel monopole of up to 130 feet in height. An approximately 12-feet by 20-feet equipment shelter may also be included within a fenced area. The shelter would have a maximum height of 10 feet. The proposed radio equipment

would be within the equipment shelter and connected to the microwave dish(es) via coaxial or fiber-optic cables. If the microwave tower is located outside the selected substation footprint, fencing would consist of an up to 6-feet-high chain-link fence with up to three strands of barbed wire (up to 2 feet high), for a total maximum height of eight feet.

Operations and Maintenance Building

The proposed Project includes six (6) locations for up to four (4) O&M building(s), each less than 3,600 sf. in size, with associated on-site parking. The O&M building(s) would be steel framed, with metal siding and roof panels. The O&M building(s) may include the following:

- Office
- Repair building/parts storage
- Control room
- Restroom
    - Septic tank and leach field

The septic tank and leach field, roads, driveways, and parking lot entrances would be constructed in accordance with Kern County improvement standards. Parking spaces and walkways would be constructed in accordance with all California accessibility regulations. It is expected that the proposed Project could require an operational staff of up to 20 full-time employees. Any unused O&M building areas on-site may be covered by solar panels.

Site Access

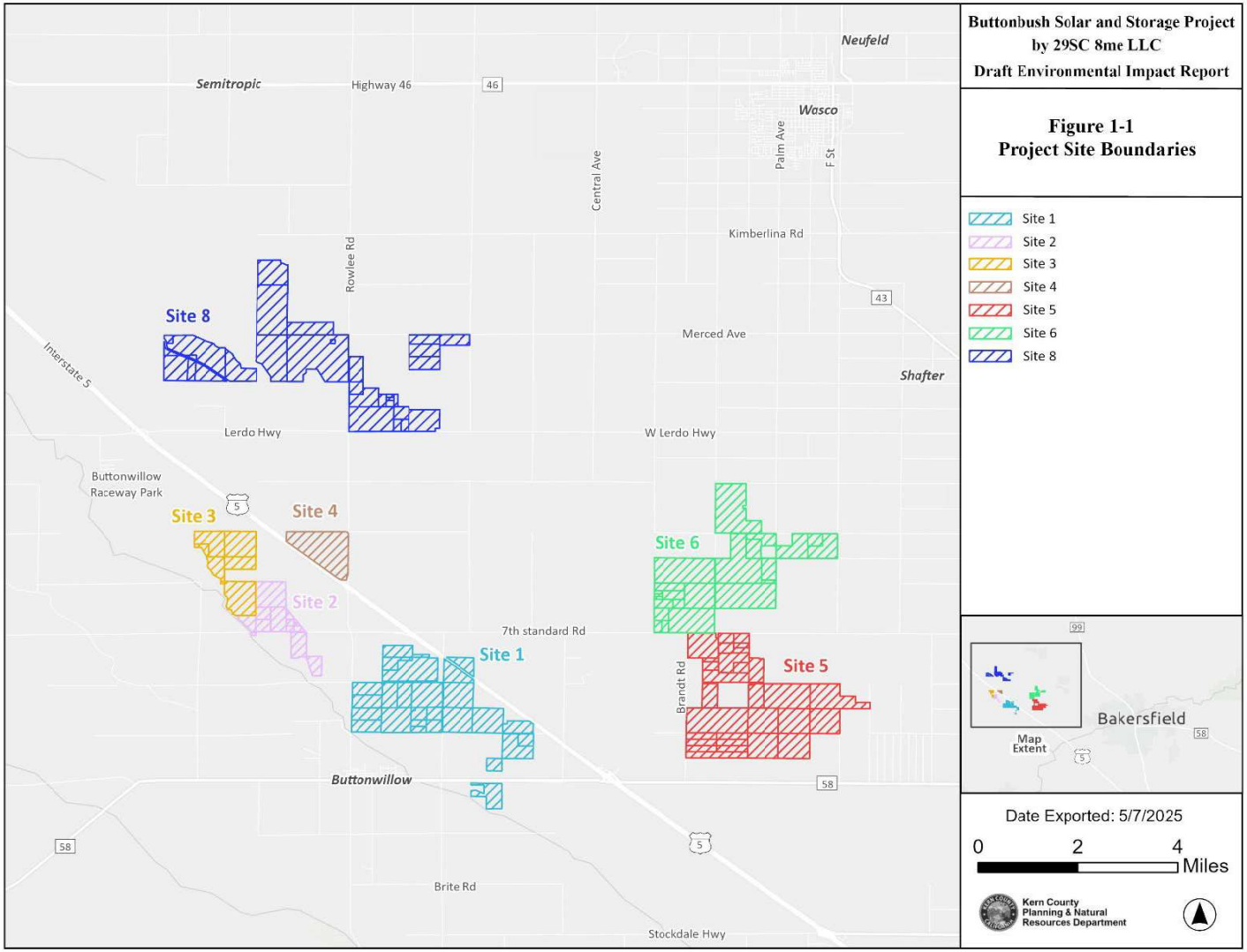
Construction and operation traffic would access the Project site from Wasco Way, Merced Avenue, Lerdo Highway, Rowlee Road, Wildwood Road, Buttonwillow Drive, 7th Standard Road, Snow Road, SR-58, and or Sullivan Road, depending on the specific area within the Project site (Site 1 through6, and Site 8) requiring access. Many dirt roads cross the site. Installation of the proposed facilities may include minor improvements to the existing paved roads to install driveways to facilitate the delivery of equipment and personnel to the Project site during construction and operations. Driveways and parking lot entrances would be constructed in accordance with Kern County improvement standards. Any off-site roadway improvements would be constructed in conformance with Caltrans and/or County codes and regulations, as applicable.

Minor road improvement activities, if needed, may include grading, widening, compacting, and/or applying an approved soil stabilizer. In addition, a 20-foot-wide–minimum road is required around the perimeter of the solar arrays for the fire department and emergency vehicles. Additional internal maintenance roads would be located throughout the project area. Spacing between each row would depend on final panel type, orientation, and any County regulations. Internal roads would be up at least 20 feet wide and would be cleared and compacted for equipment and emergency vehicle travel and access to the solar blocks. These project site access roads would remain in place for ongoing O&M activities after construction is completed. Final service road alignments would depend on the

final placement of the solar panels, topography, and other site-specific details to be incorporated into the final design.

The Project site would be enclosed within a chain-link fence with barbed wire, measuring up to 8 feet in height. The proposed Project may include additional security measures, including, but not limited to: slats or screening material, fencing with warning reflective signage, controlled access points, security alarms, security camera systems, and security guard vehicle patrols to deter trespassing and/or unauthorized activities that could interfere with construction or operation of the proposed project. Fencing would be adapted prior to the commencement of operations as needed to allow for the movement of wildlife. Following construction, permanent fencing around the Project site would allow for the passage of specific wildlife, while impeding the passage of larger predators.

Figure 1-1: Project Site Boundaries



1.6 Environmental Impacts

CEQA Guidelines Section 15128 requires that an EIR contain a statement briefly indicating the reasons why any new and possibly significant effects of a project were determined not to be significant and, therefore, were not discussed in detail in the EIR. The County has engaged the public to participate in the scoping of the environmental document.

The contents of this Draft EIR were established based on an NOP prepared in accordance with the CEQA Guidelines and on public and agency input that was received during the scoping process. Comments received on the NOP are located in Appendix A.2 of this Draft EIR.

1.6.1 Impacts Not Further Considered in this Draft EIR

Based on the findings of the NOP and the results of scoping, a determination was made that it is not likely that the proposed Project would result in significant environmental effects to Recreation and Population and Housing. These two resource areas were eliminated from discussion based on the findings of the Initial Study prepared for the proposed Project and included with the NOP.

1.6.2 Impacts of the Project

Sections 4.1 through Section 4.18 in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*, provide a detailed discussion of the environmental setting, impacts associated with the proposed Project, and mitigation measures designed to reduce significant impacts to less than significant levels when feasible. The impacts, mitigation measures, and residual impacts for the proposed Project are summarized in **Table 1-7:** *Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation*, located at the end of this chapter, and are discussed further in this subsection.

Impacts related to the following resource areas are evaluated in this Draft EIR for their potential significance:

- Aesthetics and Visual Resources
- Agricultural Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Public Services
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

Environmental Impacts Found To Be Less Than Significant

After further study and environmental review in this Draft EIR, certain direct, indirect, and cumulative impacts associated with the proposed Project would have less than significant impacts or could be reduced to less than significant levels with implementation of mitigation measures, as presented in **Table 1-4:** *Summary of Project Impacts that are Less Than Significant or Less Than Significant with Mitigation*. Less than significant cumulative impacts are also included in this table. Sections 4.1 through 4.18 of this Draft EIR present detailed analysis of these impacts and describe the means by which the mitigation measures would reduce impacts to a less than significant level.

Table 1-3: Summary of Project Impacts that are Less Than Significant or Less Than Significant with Mitigation

Impact	Mitigation Measures
Air Quality (Project)	MM 4.3-1 through MM 4.3-11
Biological Resources (Project)	MM 4.4-1 through MM 4.4-25
Cultural Resources (Project and Cumulative)	MM 4.5-1 through MM 4.5-6
Energy (Project and Cumulative)	No mitigation required
Geology and Soils (Project and Cumulative)	MM 4.7-1 through MM 4.7-5, and MM 4.10-1
Greenhouse Gas Emissions (Project and Cumulative)	No mitigation required
Hazards and Hazardous Materials (Project and Cumulative)	MM 4.9-1through MM 4.9-3, and MM 4.14-1
Hydrology and Water Quality (Project and Cumulative)	MM 4.10-1 through MM 4.10-3, and MM 4.9-1
Land Use and Planning (Project and Cumulative)	MM 4.11-1
Mineral Resources (Project)	MM 4.12-1
Noise (Project and Cumulative)	MM 4.13-1 through MM 4.13-4
Public Services (Project and Cumulative)	MM 4.14-1 through MM 4.14-5
Transportation and Traffic (Project and Cumulative)	MM 4.15-1 and MM 4.15-2
Tribal Cultural Resources (Project and Cumulative)	MM 4.5-1 through MM 4.5-6
Utilities and Service Systems (Project and Cumulative)	MM 4.17-1 and MM 4.17-2, and MM 4.10-1
Wildfire (Project)	MM 4.15-2, MM 4.1-4, and MM 4.14-1

Significant Environmental Impacts That Cannot Be Avoided

Section 15126.2(b) of the CEQA Guidelines requires EIRs to describe any significant impacts, including those that can be mitigated but not reduced to less than significant levels. Potential environmental effects of the proposed Project and proposed mitigation measures are discussed in the applicable sections of Chapter 4 of this Draft EIR.

After further study and environmental review, as provided in this Draft EIR, it was determined that the proposed Project would result in Project-level and cumulative impacts regarding several environmental topics. According to Section 15355 of the CEQA Guidelines, the term cumulative impacts "refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Individual effects that may contribute to a cumulative impact may result from a single project or a number of separate projects. Individually, the impacts of a project may be relatively minor, but when considered along with impacts of other closely related or nearby projects, including newly proposed projects, the effects could be cumulatively considerable.

This Draft EIR considers the potential cumulative effects of the Project. Impacts for the following issue areas have been found to be significant and unavoidable:

- Aesthetics (Project and Cumulative)
- Agricultural Resources (Project and Cumulative)
- Air Quality (Cumulative)
- Biological Resources (Cumulative)
- Mineral Resources (Cumulative)
- Wildfire (Cumulative)

As shown in **Table 1-4:** *Summary of Significant and Unavoidable Impacts of the Proposed Project*, impacts involving the following areas would be significant and unavoidable, even with the incorporation of mitigation measures to the greatest extent feasible.

Table 1-4: Summary of Significant and Unavoidable Impacts of the Project

Resources	Project Impacts	Cumulative Impacts
Aesthetics	The introduction of solar facilities and associated infrastructure would create a visual contrast to the agricultural landscape and would be noticeable to local viewers. Across 11,983 acres, the presence of on-site substations, O&M buildings, microwave towers, BESS, and gen-tie line infrastructure would introduce new industrial elements that would obscure the open valley landscape and ultimately degrade public view of the site and surroundings. Even with Mitigation Measures MM 4.1-1 through MM 4.1-5, impacts would be **significant and unavoidable**.	The proposed Project, in combination with other existing or reasonably foreseeable projects, could result in cumulative impacts regarding visual character and public views. Even with mitigation, the proposed Project would still adversely affect the visual quality and public views from the installation of solar arrays and associated infrastructure across 11,983 acres. The proposed Project's contribution to cumulative impacts, when combined with other known and unknown projects, are **cumulatively significant and unavoidable**. All reasonable and feasible mitigation measures have been evaluated and included.
Agricultural Resources	The proposed Project would result in the conversion of approximately 10,582 acres of Important Farmland and agriculturally zoned land to non-agricultural uses. The proposed Project would also require the cancellation of Farmland Security Zone and WALUCs on approximately 10,689 acres. There are no feasible mitigation measures available to reduce impacts related to the conversion of Important Farmland or the cancellation of Farmland Security Zone and WALUCs. Therefore, impacts would be **significant and unavoidable**.	The proposed Project, in combination with other existing or reasonably foreseeable projects, could result in cumulative impacts on agricultural resources. The conversion of approximately 10,582 acres of Important Farmland and agriculturally zoned land and the cancellation of Farmland Security Zone and WALUC on approximately 10,689 acres, when combined with other known and unknown projects, would contribute to cumulatively **significant and unavoidable cumulative** impact regarding agriculture. There are no feasible mitigation measures available to reduce such impacts.
Air Quality	There would be no significant and unavoidable proposed Project impacts. Given that air quality impacts are evaluated on a regional scale and accounts for the proposed Project's impacts in combination with those of other planned and probable future sources of air emissions, impacts are inherently cumulative.	The proposed Project, in combination with other existing or reasonably foreseeable projects, could result in cumulative impacts regarding air quality. Although the estimated Project-level emissions are below the SJVAPCD's significance thresholds with mitigation, when considered with other projects within 6 miles and situated in the same air basin, construction-related emissions would be cumulatively considerable. Even with mitigation, construction-related impacts would remain **cumulatively significant and unavoidable**. All reasonable and feasible mitigation measures have been evaluated and included.

Table 1-4: Summary of Significant and Unavoidable Impacts of the Project

Resources	Project Impacts	Cumulative Impacts
Biological Resources	There would be no significant and unavoidable Project-specific impacts after mitigation.	The proposed Project, in combination with other existing or reasonably foreseeable projects, could result in cumulative impacts on biological resources. While Project-level impacts would be less than significant with mitigation, when considered with other development projects in the San Joaquin Valley, the proposed Project would make a cumulatively considerable contribution to cumulative impacts involving loss of habitat for special status species, loss of natural sensitive communities, and impediments to wildlife movement. The cumulative impacts of the proposed Project when combined with other known and unknown projects are **cumulatively significant and unavoidable**. All reasonable and feasible mitigation measures have been evaluated and included.
Mineral Resources	There would be no significant and unavoidable Project-specific impacts after mitigation.	The proposed Project, in combination with other existing or reasonably foreseeable projects, could result in cumulative impacts on mineral resources. The potential for not all mineral rights holders to reach an agreement could result in the loss of availability to minerals, which is considered a significant impact regarding mineral resources. Even with the implementation of Mitigation Measure MM 4.12-1, the proposed Project's cumulative contribution would remain **significant and unavoidable**.
Wildfire	There would be no significant and unavoidable Project-specific impacts after mitigation.	Given the location is subject to high wind speeds, and is a rural area with limited infrastructure, the project and related projects have the potential to result in a cumulative impact related to exposing people or structures to significant risks as a result of runoff, or drainage changes. Even with implementation of Mitigation Measure MM 4.1-4, MM 4.10 1, and MM 4.14-1 the proposed Project's cumulative contribution would remain **significant and unavoidable impact.**

Key: BESS = battery energy storage system; O&M = operation and maintenance; SJVAPCD = San Joaquin Valley Air Pollution Control District; WALUC = Williamson Act Land Use Contract

1.6.3 Irreversible Impacts

Section 15126.2(c) of the CEQA Guidelines defines an irreversible impact as an impact resulting from the use of nonrenewable resources during the initial and continued phases of the proposed Project. Irretrievable commitments of resources should be evaluated to ensure that such consumption is justified. Irreversible impacts can also result from damage caused by environmental accidents associated with a project.

Build out of the proposed Project would commit nonrenewable resources during Project construction. Energy resources, such as diesel and gasoline fuel, would be consumed during the use of off-road equipment and on-road vehicles, and electricity would be consumed to operate lighting and electrical equipment. The use of nonrenewable resources for Project construction would be temporary.

During Project operations, oil, gas, and other fossil fuels and nonrenewable resources would be consumed, primarily in the form of transportation fuel for Project employees. Therefore, an irreversible commitment of nonrenewable resources would occur as a result of long-term Project operations. However, assuming that those commitments occur in accordance with the adopted goals, policies, and implementation measures of the KCGP and Buttonwillow Community Development Plan (Specific Plan), as a matter of public policy, those commitments have been determined to be acceptable. Compliance with the KCGP and Specific Plan would ensure that any irreversible environmental changes associated with those commitments will be minimized, to the extent feasible.

1.6.4 Growth Inducement

The KCGP recognizes that certain forms of growth are beneficial, both economically and socially. Section 15126.2(d) of the CEQA Guidelines states that a project may have growth-inducing environmental impacts if it "…foster[s] economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment."

Growth inducement can be a result of new development that requires an increase in employment levels, removes barriers to development, or provides resources that lead to secondary growth. With respect to employment, the proposed Project would not induce substantial growth. As described above, construction staff that are not local would likely be housed in existing communities. Project operation would include up to 20 FTE personnel (or an approximately 0.00002% increase in the Kern County population) that would be responsible for site and facility maintenance activities, such as cleaning PV panels, monitoring electricity generation, providing site security, and repairing or replacing solar facility components. It is expected that some of these individuals would already reside in the area and operation of the proposed Project would not result in a substantial influx of people. Construction staff not drawn from the local labor pool would likely be accommodated by the local lodging industry Therefore, the proposed Project is not likely to induce any growth within Kern County.

Although the proposed Project would contribute to Kern County's energy supply, the development of the solar facility is in response to the increased market demand and, consequently, is unlikely to facilitate new growth. Kern County planning documents already permit and anticipate a certain level of growth within the proposed Project area, along with a corresponding increase in energy demand. It is this anticipated growth that drives energy-production projects, not vice versa. The proposed Project would supply energy to accommodate and support existing demand and projected growth, but it would not foster substantial new growth.

1.7 Energy Conservation

To ensure that energy implications are considered in project decisions, CEQA requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy (Public Resources Code Section 21100(b)(3)). According to Appendix F of the CEQA Guidelines, the goal of conserving energy implies the wise and efficient use of energy, including: (1) decreasing overall per capita energy consumption; (2) decreasing reliance on natural gas and oil; and (3) increasing reliance on renewable energy sources.

As discussed in Section 4.6, *Energy*, Project construction would require the consumption of diesel and gasoline fuel to operate off-road equipment and on-road vehicles. Temporary electricity may be required to provide as-necessary lighting and to operate electric equipment. The amount of electricity used during construction would be minimal. Natural gas is not anticipated to be required during construction of the proposed Project. Overall, construction activities associated with the proposed Project would result in the consumption of petroleum-based fuels. However, there are no unusual Project characteristics that would necessitate the use of construction equipment or vehicles that would be less energy efficient than at comparable construction sites in other parts of the State of California. Therefore, it is expected that construction fuel consumption associated with the proposed Project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region.

Long-term operational activities would require energy consumption in the form of electricity and gasoline and diesel fuel. Buildings would require electricity for multiple purposes, including, but not limited to, building heating and cooling, water heating, lighting, appliances, and electronics. Gasoline and diesel fuel would be used by motor vehicles traveling to and from the Project site. However, vehicle fuel efficiency standards are expected to increase pursuant to state regulatory actions; thereby, potentially decreasing the amount of petroleum required for Project operations over time. Furthermore, the proposed Project would construct a commercial-scale solar facility and battery energy storage facility that would support state efforts to increase reliance on renewable energy sources. The proposed Project would have a total combined generation capacity of up to 2 GW of renewable electrical energy with a combined 2 GW BESS capable of storing approximately 16,000 megawatt-hours of energy. Therefore, the proposed Project would provide a new renewable energy source and would not result in the inefficient, wasteful, or unnecessary consumption of energy.

1.8 Alternatives to the Proposed Project

Section 15126.6 of the CEQA Guidelines states that an EIR must address "a range of reasonable alternatives to the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." Based on the significant and unavoidable impacts of the proposed Project, the aforementioned objectives established for the proposed Project, and the

feasibility of the alternatives considered, a range of alternatives is analyzed in the next subsection and discussed in detail in Chapter 6, *Alternatives*, of this Draft EIR.

1.8.1 Alternatives Considered and Rejected

Kern County considered numerous alternatives to reduce the proposed Project's significant and unavoidable impacts. Per CEQA, Kern County, as the lead agency, may make an initial determination as to which alternatives are feasible and warrant further consideration, and which are infeasible. The following alternatives were initially considered but were eliminated from further consideration in this Draft EIR because they do not meet proposed Project objectives and/or were infeasible.

Wind Energy Project Alternative

The Wind Energy Project Alternative would involve the use of wind energy as an alternative to development of the solar facility. Similar to solar power, energy production from wind is an alternative to energy production from coal, oil, natural gas, or nuclear sources. Wind energy provides the following benefits:

- It is a renewable and infinite resource.
- It is free of any emissions, after installation, including carbon dioxide and other GHGs.
- It is a free resource after the capital cost of installation (excluding maintenance).

In addition, energy production from wind power would not require the significant water usage associated with coal, nuclear, and combined-cycle sources. Turbines used in wind farms for commercial production of electric power are usually three-bladed units that are pointed into the wind by computer-controlled motors. The wind farm would consist of a group of wind turbines placed where electrical power is produced. The individual turbines would be interconnected with a medium-voltage power collection system and a communications network. At a substation, the medium-voltage electrical current would be increased through a transformer before connection to the high-voltage transmission system. Compared with traditional energy sources, the environmental effects of wind power are relatively minor. However, wind farms would not decrease short-term construction-related air emissions. Wind turbines would also have the potential to adversely affect avian species in the local area. In addition, in order for wind turbines to produce an equivalent 2 GW of power that the proposed Project would produce, the alternative would require more land area than what the Project site currently accommodates and, consequently, the proposed Project site acreage would need to be expanded.

As noted above, some of the proposed Project objectives are to develop a solar facility that will help meet the increasing demand for clean, renewable electrical power, as well as help California meet its statutory and regulatory goals of generating more renewable power with minimum potential for environmental effects by using proven and established PV technology that is efficient, requires low maintenance, and is recyclable. Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the proposed Project objectives, are infeasible,

or do not avoid or substantially reduce significant environmental effects. Therefore, this alternative was eliminated from further consideration because:

- It would substantially increase the significant aesthetic impacts associated with the proposed Project because wind turbines would be much taller than solar panels, require Federal Aviation Administration lighting, and are more visible from many viewpoints.
- It may result in additional/greater biological resources impacts to avian species than the proposed Project.
- It may generate long-term noise impacts to nearby sensitive receptors from rotating turbine blades.
- It may result in increased land use and planning impacts associated with the proposed Project due to the need for a larger Project site.

Industrial Power Plant Alternative

This alternative would involve the development of a natural gas-fired power plant or plants (equivalent to 2 GW) in Kern County. Fossil fuel-powered plants are designed on a large scale for continuous operation. However, byproducts of industrial power plant operation need to be considered in both design and operation. When waste heat that results from the finite efficiency of the power cycle is not recovered and used as steam or hot water, it must be released to the atmosphere, and often uses a cooling tower as a cooling medium (especially for condensing steam). The flue gas from combustion of the fossil fuels is discharged to the air and contains carbon dioxide and water vapor as well as other substances, such as nitrogen, nitrogen oxides, and sulfur oxides.

Furthermore, unlike the proposed Project, fossil fuel-powered plants are major emitters of GHGs. In addition, industrial power plants generally involve the construction of large structures, such as cooling towers and gas stacks, as well as a large number of employees to operate the facility on a 24/7 basis 365 days a year. Accordingly, the development of an industrial power plant would typically result in greater adverse impacts related to: (1) aesthetics and the local visual setting of the Project site; (2) air quality and GHG emissions; (3) land use and planning conflicts with the rural development of the surrounding area; (4) noise from the plant operations; (5) traffic from a greater number of employees required to operate the facility, as compared to a PV solar energy production facility; and (6) demand on public utilities, including water and waste disposal. As noted above, some of the objectives for the proposed Project are to develop a solar project that would help meet the increasing demand for clean, renewable electrical power as well as help California meet its statutory and regulatory goals of generating more renewable power with minimum potential for environmental effects. Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the proposed Project objectives, are infeasible, or do not avoid or substantially reduce significant environmental effects. Therefore, this alternative was eliminated from further consideration because:

- It would result in additional/greater impacts than the proposed Project, including aesthetics, air quality, biological resources, GHG emissions, land use and planning, noise, transportation and traffic, and public utilities, including water use and disposal.
- It would not contribute to the statewide renewable energy and GHG reduction objectives, as this alternative would use nonrenewable energy to produce electricity.

Alternative Site

This alternative would involve the development of the proposed Project on another site located within Kern County, other than constructing rooftop distributed generation systems as described in Section 6.7.4, *Alternative 4—No Ground Mounted Utility-Solar Development Alternative—Distributed Commercial and Industrial Rooftop Solar Only*, below. Although undetermined at this time, the alternative Project site would likely be located in the San Joaquin Valley of Kern County. Similar to the proposed Project, this alternative is assumed to involve the construction of a 2 GW PV solar facility and (up to) 2 GW BESS on a site totaling 11,983 acres.

The San Joaquin Valley within Kern County has attracted renewable energy development applications that are being proposed for vacant land or land with a history of agricultural uses. However, given that the proposed Project requires 11,893 acres, it is unlikely that the Project proponent would be able to acquire parcels for the alternative site that would collectively offer sufficient contiguous or semi-contiguous areas to accommodate the full scope of development. Furthermore, while the individual parcels within the San Joaquin Valley in Kern County may exhibit similar sizes, configurations, and land use histories as the Project site, these alternative sites would likely have similar project- and cumulative-level impacts after mitigation, including significant impacts regarding aesthetics and visual resources, agriculture, air quality, biological resources, mineral resources, and wildfire. This is based on the known general conditions in the area and the magnitude of the proposed Project.

As noted above, alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the proposed Project objectives, are infeasible, or do not avoid or substantially reduce significant environmental effects. Therefore, this alternative was eliminated because it would be infeasible to require the Project proponent to acquire an alternative site of adequate size, and it would not avoid or substantially reduce the significant environmental effects of the proposed Project.

1.8.2 Alternatives to the Project

Alternatives that would avoid or substantially lessen any of the significant effects of the proposed Project and feasibly attain most of the basic proposed Project objectives are evaluated in Sections 6.7.1 through 6.7.5, in Chapter 6, *Alternatives*. The alternatives are discussed with respect to their relationship to the proposed Project's objectives. Kern County has considered in this Draft EIR the following five alternatives, which are also identified in **Table 1-6:** *Summary Comparison of Alternative Impacts* and discussed individually below. Within **Table 1-6,** comparative impacts are identified as "Less," "Similar," or "Greater" than impacts resulting from the proposed Project. Comparative levels of significance are denoted by NI (No Impact), LTS (less than significant) and SU (significant and unavoidable):

- Alternative 1—"No Project" Alternative
- Alternative 2—General Plan/Specific Plan and Zoning Build-Out Alternative
- Alternative 3—Reduced Acreage Alternative
- Alternative 4—No Ground-Mounted Utility-Solar Development Alternative – Distributed Commercial and Industrial Rooftop Solar Only
- Alternative 5—Non-Williamson Act and Farmland Security Zone Parcels Alternative

Alternative 1—"No Project" Alternative

As required by the CEQA Guidelines Section 15126.6, this section of this Draft EIR describes and analyzes a "no project" alternative for the purpose of comparing the impacts of approving the proposed Project with the impacts of not approving the proposed Project. Alternative 1, the No Project Alternative, assumes that the development of the (up to) 2 GW PV solar facility on 11,983 acres of privately owned land would not occur. The No Project Alternative would not require the GPAs, an SPA, CUPs, Public Access Easement Vacations, and the cancellation of Farmland Security Zone and WALUCs which are required for the proposed Project. The No Project Alternative would maintain the current zoning, land use classifications, and existing land uses, which consist mostly of agricultural and undisturbed land. No physical changes would be made to the Project site besides those which occur as part of existing agricultural operations and oil and gas development (for example, crop rotations and changes to oil and gas wells and related infrastructure). Therefore, the No Project Alternative would not result in a renewable energy source that would provide reliable electricity, promote economic development, or assist the State of California in complying with the RPS and GHG emission reduction standards.

Alternative 2—General Plan/Specific Plan and Zoning Build-Out Alternative

Implementation of General Plan/Specific Plan and Zoning Build-Out Alternative would involve development of the Project site pursuant to the current land use and zoning classifications. As described in Section 3.6.2, *Project Description - Land Use and Zoning*, the Project site has the following KCGP Map Codes: 4.1 Special Treatment Areas (Accepted County Plan Areas); 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size); 8.1/2.3 (Intensive Agriculture, Min. 20-Acre Parcel Size/Shallow Groundwater); 8.3 (Extensive Agriculture, Min. 20- or 80-Acre Parcel Size); 8.4 (Mineral and Petroleum, Min. 5-Acre Parcel Size); and 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size). Additionally, the KCZO designates the Project site as Exclusive Agriculture (A). The Exclusive Agriculture (A) District is limited primarily to agricultural uses and other activities compatible with agricultural uses to prevent the encroachment of incompatible uses and the premature conversion of such lands to non-agricultural uses. Additionally, the KCGP Circulation Element identifies several future roadway alignments along section and mid-section lines within the Project site.

Given the land use and zoning designations described above, this alternative would involve the development of permitted uses associated with the Exclusive Agriculture (A) District, as defined in Chapter 19.12 of the KCZO. Permitted uses include agricultural uses, such as growing and harvesting crops, breeding and raising animals, and operating agricultural industries, such as animal and plant product processing facilities; residential uses that support agricultural operations, such as farm labor housing and single-family dwellings; commercial uses, such as fruit stands and horse boarding; utility and communication facilities; and resource extraction and energy development uses, such as oil and gas exploration and production facilities. All development would be limited to uses permitted by-right only. The following analysis evaluates the environmental impacts associated with build-out conditions that are limited to ministerial uses permitted under the existing planning framework. Given that solar facilities such as the one included in the proposed Project would require several discretionary actions, such as GPAs, SPAs, CUPs, Public Access Easement Vacations and cancellations of Farmland Security Zone and WALUCs, Alternative 2 does not include the installation of a solar facility or, for that matter, any renewable energy production, storage, and/or transmission facility requiring a discretionary action.

Alternative 3—Reduced Acreage Alternative

Alternative 3, the Reduced Acreage Alternative, would reduce the Project area by approximately 40 percent. Under this alternative, Site 5 (2,677 acres) and Site 6 (2,409 acres) would be omitted from the Project area and would not be developed for solar energy production. As such, the total Project area would be reduced by approximately 5,086 acres, from 11,983 to 6,892 acres. In addition, this alternative would reduce the proposed Project's total generation capacity by approximately 43 percent, from 2,000 MW to 1,143 MW, as well as reduce the proposed Project's energy storage capacity by 60 percent, from 16,000 MWh to 6,400 MWh. Given that Sites 5 and 6 would remain in their current state as active agriculture and undisturbed land, CUPs, GPAs, and Farmland Security Zone and WALUCC, or vacation of public access easements for Sites 5 and/or

6 would not be required. Sites 1 through 4 and Site 8 would be developed as described in Chapter 3, *Project Description*.

Alternative 4—No Ground-Mounted Utility-Solar Development Alternative—Distributed Commercial and Industrial Rooftop Solar Only

Alternative 4, the No Ground-Mounted Utility-Solar Development Alternative, would involve the development of a number of geographically distributed small to medium solar PV systems (100 kWh to 1 MW) within existing developed areas, typically on the rooftops of commercial and industrial facilities situated throughout the valley region of Kern County. Under this alternative, no currently undeveloped land would be developed or altered.

Depending on the type of solar modules installed and the type of tracking equipment used (if any), a similar or greater amount of acreage (that is, greater than 11,983 acres of total rooftop area) may be required to attain the proposed Project's capacity of 2 GW of solar PV generating capacity and storage. Because of space or capital cost constraints, many rooftop solar PV systems would be fixed-axis systems or would not include the same type of sun-tracking equipment that would be installed under the proposed Project. Therefore, this alternative would not attain the same level of efficiency with respect to solar PV energy generation. Power generated by the distributed solar PV systems would typically be consumed on-site by the commercial or industrial facility without requiring the construction of new electrical substation or transmission facilities. Decommissioning of this alternative would not be required.

Alternative 5—Non-Williamson Act and Farmland Security Zone Parcels Alternative

Alternative 5, the Non-Williamson Act and Farmland Security Zone Parcels Alternative, would reduce the Project area by omitting all parcels under currently active Farmland Security Zone and WALUCs from the development footprint. (See Chapter 3.0, *Project Description*, **Figure 3-8:** *Williamson Act Land Use Cancellations*, for a map of the areas within the Project site that are subject to Williamson Act and Farmland Security Zone Contracts.) Overall, this alternative would reduce the Project site by approximately 90 percent. The extent of reduction for each individual Project site would vary, depending on the number of parcels, parcel sizes, and the Farmland Security Zone and WALUC status. Site-specific reductions are anticipated to range from approximately 68 percent to as much as 100 percent. Sites 3, 4, and 5 would be completely removed from the Project site. **Table 1-5:** *Project Area Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative*, summarizes the reduction in Project area by site.

Table 1-5: Project Area Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative

Project Site	Total Acres (Original Size)	WALUC/FSZC Acres	Alternative 5—Non-WALUC/FSZC Acres	Site Reduction Percentage
Site 1	2,289	2,071	218	90
Site 2	543	403	140	74
Site 3	644	644	0	100
Site 4	395	395	0	100
Site 5	2,678	2,678	0	100
Site 6	2,409	1,641	768	68
Site 8	3,025	2,858	167	94
Total	**11,983**	**10,689**	**1,294**	**89**

Key: WALUC = Williamson Act Land Use Contract; FSZC = Farmland Security Zone Contract

Overall, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would have a combined total solar generation capacity of approximately 215 MW and solar storage capacity of approximately 1,728 MWh. As such, this alternative would reduce the total solar generation and storage capacity by approximately 1,784 MW and 14,272 MWh, respectively. The Non-Williamson Act Parcels and Farmland Security Zone Alternative would eliminate the need for WALUCC. However, the remaining 1,294 acres would be developed with facilities similar to, yet at a substantially reduced scale as, those described in Chapter 3, *Project Description*, and would still involve discretionary entitlements and approvals, including CUPs to allow the facilities, GPAs and an SPA to remove future road reservations, and public access easement vacations.

Environmentally Superior Alternative

As presented in the comparative analysis above, and as shown in **Table 1-6:** *Summary Comparison of Alternative Impacts*, there are a number of factors to consider in selecting the environmentally superior alternative. An EIR must identify the environmentally superior alternative to the proposed Project. Alternative 1, the No Project Alternative, would be environmentally superior to the proposed Project on the basis of its minimization or avoidance of physical environmental impacts. However, CEQA Guidelines Section 15126.6(e)(2) states the following:

> *The "no project" analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.*

Because the No Project Alternative cannot be the Environmentally Superior Alternative under CEQA, the Environmentally Superior Alternative is considered to be Alternative 2, the No Ground-Mounted Utility-Solar Development Alternative. Compared to the proposed Project, the No Ground-Mounted Utility-Solar Development Alternative would result in less impacts related to aesthetics, agriculture, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, public services, transportation, tribal cultural resources, utilities and service systems, and wildfires. Specifically, this alternative would avoid significant and unavoidable impacts related to aesthetics and visual resources (project and cumulative), agricultural resources (project and cumulative), air quality (cumulative only-construction), biological resources (cumulative only), mineral resources (cumulative only), and wildfire (cumulative only) that would occur under the proposed Project.

However, the No Ground-Mounted Utility-Solar Development Alternative has the potential to result in greater construction noise-related impacts as compared to the proposed Project, depending on the proposed locations of the solar PV systems in relation to noise-sensitive receptors. Further, given that this alternative does not include sun-tracking solar PV systems or a battery energy storage component, the No Ground-Mounted Utility-Solar Development Alternative would result in greater impacts regarding energy and GHG emissions.

The No Ground-Mounted Utility-Solar Development Alternative would partially fulfill the objectives outlined in Section 6.2, *Applicant Submitted Project Objectives*. This alternative would support renewable energy generation and align with the Project proponent's goals for solar development, reliable electricity, and GHG reduction. However, the absence of sun-tracking technologies would result in substantially lower energy output compared to the proposed Project and would not include a centralized energy storage system, thereby limiting its ability to deliver consistent and reliable power. Additionally, because all energy produced would be consumed on-site, the alternative would not contribute to grid-distributed renewable energy, reducing its effectiveness in meeting regional energy supply goals.

Additionally, as previously described, the No Ground-Mounted Utility-Solar Development Alternative would be unable to be implemented within the same timeframe as the proposed Project, as the Project proponent lacks immediate control and access to the sites required to develop the solar facilities.

Table 1-6: Summary Comparison of Alternative Impacts

Issue Area	Project Summary of Impacts	Alternative 1 No Project	Alternative 2 General Plan/Specific Plan and Zoning Build-Out Alternative	Alternative 3 Reduced Acreage Alternative	Alternative 4 No Ground-Mounted Utility-Solar Development Alternative	Alternative 5 Non-Williamson Act and Farmland Security Zone Parcels Alternative
Aesthetics and Visual Resource	Significant and unavoidable (project-specific and cumulative)	Less (NI)	Less (LTS)	Less (SU)	Less (LTS)	Less (SU)
Agricultural and Forest Resources	Significant and unavoidable (project-specific and cumulative)	Less (NI)	Less (LTS)	Less (SU)	Less (NI)	Less (SU)
Air Quality	Less that significant with mitigation (Project) Significant and unavoidable (cumulative construction only)	Less (NI)	Greater(SU)	Less (LTS – project; SU – cumulative)	Less (LTS)	Less (LTS – project; SU – cumulative)
Biological Resources	Less that significant with mitigation (Project) Significant and unavoidable (cumulative only)	Less (NI)	Greater (SU - cumulative)	Less (LTS – project; SU – cumulative)	Less (LTS)	Less (LTS – project; SU – cumulative)
Cultural Resources	Less than significant with mitigation	Similar (LTS)	Greater (SU)	Less (LTS)	Less (LTS)	Less (LTS)
Energy	Less than significant	Greater (LTS)	Greater (LTS)	Greater (LTS)	Greater (LTS)	Greater (LTS)
Geology and Soils	Less than significant with mitigation	Less (NI)	Similar (LTS)	Less (LTS)	Less (LTS)	Less (LTS)
Greenhouse Gas Emissions	Less than significant	Greater (SU - cumulative)	Greater (SU)	Greater (LTS)	Greater (LTS)	Greater (LTS)
Hazards and Hazardous Materials	Less than significant with mitigation	Less (NI)	Greater (LTS)	Less (LTS)	Less (LTS)	Less (LTS)
Hydrology and Water Quality	Less than significant with mitigation	Greater (NI)	Greater (LTS)	Greater(groundwater), Less (others) (LTS)	Less (LTS)	Greater(groundwater), Less (others) (LTS)

Table 1-6: Summary Comparison of Alternative Impacts

Issue Area	Project Summary of Impacts	Alternative 1 No Project	Alternative 2 General Plan/Specific Plan and Zoning Build-Out Alternative	Alternative 3 Reduced Acreage Alternative	Alternative 4 No Ground-Mounted Utility-Solar Development Alternative	Alternative 5 Non-Williamson Act and Farmland Security Zone Parcels Alternative
Land Use and Planning	Less than significant with mitigation	Less (NI)	Less (NI)	Less (LTS)	Less (LTS)	Less (LTS)
Mineral Resources	Less than significant with mitigation (project-specific only) Significant and unavoidable (cumulative only)	Less (NI)	Less (LTS)	Less (SU)	Less (LTS)	Less (SU)
Noise	Less than significant with mitigation	Less (NI)	Greater (ground borne vibration) (SU)	Less (LTS)	Greater (LTS)	Less (LTS)
Public Services	Less than significant with mitigation	Less (NI)	Similar (LTS)	Less (LTS)	Less (LTS)	Less (LTS)
Transportation	Less than significant with mitigation	Less (NI)	Greater (SU)	Less (LTS)	Less (LTS)	Less (LTS)
Tribal Cultural Resources	Less than significant with mitigation	Less (NI)	Greater (SU)	Less (LTS)	Less (LTS)	Less (LTS)
Utilities and Service Systems	Less than significant with mitigation	Greater (LTS)	Greater(LTS)	Greater (groundwater), Less (others) (LTS)	Greater (groundwater), Less (others) (LTS)	Greater (groundwater), Less (others) (LTS)
Wildfire	Less than significant with mitigation (project-specific only) Significant and unavoidable (cumulative only)	Less (NI)	Similar (LTS)	Less (SU)	Less (LTS)	Less (SU)
Meet Applicant Provided Project Objectives	All	None	None	Partially	Partially	All – but to a substantially lesser degree

Table 1-6: Summary Comparison of Alternative Impacts

Issue Area	Project Summary of Impacts	Alternative 1 No Project	Alternative 2 General Plan/Specific Plan and Zoning Build-Out Alternative	Alternative 3 Reduced Acreage Alternative	Alternative 4 No Ground-Mounted Utility-Solar Development Alternative	Alternative 5 Non-Williamson Act and Farmland Security Zone Parcels Alternative
Reduced Significant and Unavoidable Impacts?	N/A	All	Some	All	All	All

Key: LTS = Less than Significant; NI = No Impact; SU = Significant and Unavoidable

1.9 Areas of Known Controversy

Areas of controversy were identified through written agency and public comments received during the scoping period. Public comments received during the scoping period are summarized in Chapter 2, *Introduction*, and provided in Appendix A.2. In summary, the following issues were identified during scoping and are addressed in the appropriate sections of Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*:

- Conversion of agricultural land and impacts to California's agricultural land resources
- Special status species and high-value biological resources that provide important habitat are present on and near the Project site
- Project parcels are in close proximity to the CDFW's Buttonwillow Ecological Reserve, Lokern Ecological Reserve, and Semitropic Ecological Reserve
- Responsibility for any plugged or abandoned well
- Environmental concerns about solar chips
- Air quality concerns for criteria pollutants and safety of operations

1.10 Issues to Be Resolved

Section 15123(b) (3) of the CEQA Guidelines requires that an EIR contain issues to be resolved, which include the choices among alternatives and whether or how to mitigate significant impacts. The major issues to be resolved regarding a project include decisions by the Lead Agency:

- Determine whether the Draft EIR adequately describes the environmental impacts of a project.
- Select a preferred choice among alternatives.
- Determine whether the recommended mitigation measures should be adopted or modified.
- Determine whether additional mitigation measures need to be applied to a project.

1.11 Summary of Environmental Impacts and Mitigation

Table 1-7: *Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation*, below, summarizes the environmental impacts of the proposed Project, mitigation measures, and unavoidable significant impacts identified and analyzed in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*, of this Draft EIR.

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Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.1 Aesthetics and Visual Resources			
Impact 4.1-1: Would the Project have a substantial adverse effect on a scenic vista?	No Impact	No mitigation would be required.	No Impact
Impact 4.1-2: Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway?	No Impact	No mitigation would be required.	No Impact
Impact 4.1-3: Would the Project, which is located in a rural area, substantially degrade the existing visual character or quality of public views (that is, views that are experienced from publicly accessible vantage points) of the site and its surroundings?	Potentially significant	**MM 4.1-1:** Prior to issuance of a grading or building permit, a Maintenance, Trash Abatement, and Pest Management Program shall be submitted for review and approval to the Kern County Planning and Natural Resources Department. The program shall include, but not be limited to the following: a. The project proponent/operator shall clear debris from the project area at least four times per year; this can be done in conjunction with regular panel washing and site maintenance activities. b. The project proponent/operator shall erect signs with contact information for the project proponent's/operator's maintenance staff at regular intervals along the site boundary, as required by the Kern County Planning and Natural Resources Department. Maintenance staff shall respond within two weeks to resident requests for additional cleanup of debris. Correspondence with such requests and responses shall be submitted to the Kern County Planning and Natural Resources Department. c. The project proponent/operator shall implement a regular trash removal and recycling program on an ongoing basis during construction and operation of the project. Barriers to prevent pest/rodent access to food waste receptacles shall be implemented. Locations of all trash receptacles during operation of the project shall be shown on final plans. d. Trash and food items shall be contained in closed secured containers at the end of the day and removed at least once per week to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs. **MM 4.1-2:** The project proponent and/or operator shall install metal fence slats or similar view-screening materials, as approved by the Kern County Planning and Natural Resources Department, in all on-site perimeter fencing for any portion of the solar site that is adjacent to a residence or parcels zoned for residential use, including E (Estate Residential), R-1 (Low-Density Residential), R-2 (Medium-Density Residential), R-3 (High-Density Residential), and PL (Platted Lands) zoning, unless the adjacent property is owned by the project proponent (to be verified by the Kern County Planning and Natural Resources Department) or a public or private agency that has submitted correspondence to the Kern County Planning and Natural Resources Department requesting this requirement to be waived. Should the project proponent/operator sell the adjacent property, slat fencing or similar view-screening materials shall be installed prior to the sale. **MM 4.1-3:** Prior to the issuance of the building permit for the solar facility, the project proponent/operator shall submit a proposed color scheme and treatment plan, for review and approval by the Kern County Panning and Natural Resources Department, that would ensure all project facilities including operations and maintenance buildings and associated array facilities, etc. blend in with the colors found in the natural landscape to the greatest extent possible. All color treatments shall result in matte or nonglossy finishes. **MM 4.1-4:** Wherever possible, within the proposed project boundary the native vegetation shall remain undisturbed unless mowing is necessary for placement of the project components. All native vegetation adjacent to the proposed project boundary shall remain in place. Prior to the commencement of project operations and decommissioning, the project proponent/operator shall submit a Landscape Revegetation and Restoration Plan for the project site to the Kern County Planning and Natural Resources Department for review and approval. The plan shall include the measures detailed below. a. In areas temporarily disturbed during construction and decommissioning (including grading or removal of root balls resulting in loose soil), the ground surface shall be revegetated with a native seed mix or native plants and/or allowed to re-vegetate with the existing native seed bank in the topsoil where possible to establish revegetation. Areas that contain permanent features such as perimeter roads, maintenance roads, BESS yards and substation/ switchyard areas, O&M facilities and/or under arrays do not require revegetation. b. The plan must include but is not limited to: (1) the approved California native seed mix that will be used on-site, (2) a timeline for seeding the site, (3) the details of which areas are to be revegetated, and (4) a clear prohibition of the use of toxic rodenticides. c. Ground cover shall include native seed mix and shall be spread where earth-moving activities have taken place, as needed to establish revegetation. The seed mix or native plants shall be determined through consultation with professionals such as landscape architect(s), horticulturist(s), botanist(s), etc. with local knowledge as shown on submitted resume and shall be approved by the Kern County Planning and Natural Resources Department prior to planting. Phased seeding may be used if a phased construction approach is used (i.e., the entire site need not be seeded all at the same time). d. Vegetation/ground cover shall be continuously maintained on the site by the project operator.	Significant and unavoidable

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		e. The revegetation and restoration of the site shall be monitored annually for a three-year period following restoration activities that occur post-construction and post-decommissioning. Based on annual monitoring visits during the three-year periods, an annual evaluation report shall be submitted to the Kern County Planning and Natural Resources Department for each of the three years. Should a 75% coverage rate not be feasible through consultation with a qualified botanist, evidence of such shall be submitted to Kern County Planning and Natural Resources Department and an appropriate coverage rate shall be established. The three-year monitoring program is intended to ensure the site naturally achieves native plant diversity, establishes perennials, and is consistent with conditions prior to implementation of the proposed project, where feasible.	
Impact 4.1-4: Would the Project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	Potentially significant	**MM 4.1-5:** Prior to commencement of project operations of the solar facility, the project proponent shall demonstrate to Kern County Planning and Natural Resources Staff, through the submittal of a lighting plan, that the project site complies with the applicable provisions of the Dark Skies Ordinance (Chapter 19.81 of the Kern County Zoning Ordinance) and shall be designed to provide the minimum illumination needed to achieve safety and security objectives. All lighting shall be directed downward and shielded to focus illumination on the desired areas only and avoid light trespass into adjacent areas. Lenses and bulbs shall not be exposed or extend below the shields. **MM 4.1-6:** Prior to the issuance of building permits, the project proponent shall demonstrate that the solar panels and hardware are designed to minimize glare and spectral highlighting. Emerging technologies shall be used, such as diffusion coatings and nanotechnological innovations, to effectively reduce the refractive index of the solar cells and protective glass. These technological advancements are intended to make the solar panels more efficient with respect to converting incident sunlight into electrical power while also reducing the amount of glare generated by the panels. Specifications of such designs shall be submitted to the Kern County Planning and Natural Resources Department. **MM 4.1-7:** Prior to commencement of project operations of the solar facility, the project operator shall demonstrate that all on-site buildings utilize non-reflective materials, as approved by the Kern County Planning and Natural Resources Department.	Less than significant
Impact 4.1: Cumulative Impacts.	Potentially significant	Implement Mitigation Measures MM 4.1-1 through MM 4.1-7, as described above.	Significant and unavoidable regarding visual character. Less than significant (lighting and glare) No impact (scenic vistas and scenic resources)
4.2 Agricultural and Forestry Resources			
Impact 4.2-1: Would the Project Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	Significant and unavoidable	Implement Mitigation Measures MM 4.9-1 (Section 4.9, *Hazards and Hazardous Materials*), Mitigation Measure MM 4.10-1 (Section 4.10, *Hydrology and Water Quality),* and the following: **MM 4.2-1:** The Project proponent/operator shall continuously comply with the following: a. The construction contractor or project personnel shall use herbicides that are approved for use in California, and are appropriate for application adjacent to natural vegetation areas and agricultural use. b. Personnel applying herbicides shall have all appropriate State and local herbicide applicator licenses and comply with all State and local regulations regarding herbicide use. c. Herbicides shall be mixed and applied in conformance with the manufacturer's directions. d. 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. e. To minimize harm to wildlife, vegetation, and water bodies, herbicides shall not be applied directly to wildlife. f. Products identified as non-toxic to birds and small mammals shall be used if nests or dens are observed. g. 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. h. A written record of all herbicide applications on the site, including dates and amounts, shall be maintained and provided to the Kern County Planning and Natural Resources Department, if requested.	Significant and unavoidable

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.2-2: Would the Project conflict with existing zoning for agricultural use or Williamson Act Contract.	Significant and unavoidable	Implement Mitigation Measures MM 4.2-1, as described above, MM 4.9-1 (Section 4.9, *Hazards and Hazardous Materials*), Mitigation Measure MM 4.10-1 (Section 4.10, *Hydrology and Water Quality)*.	Significant and unavoidable
Impact 4.2-3: Would the Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)) or timberland (as defined in Public Resources Code Section 4526) or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).	No impact	No mitigation measures would be required.	No impact
Impact 4.2-4: Would the Project result in the loss of forestland or conversion of forest land to non-forest use.	No impact	No mitigation measures would be required.	No impact
Impact 4.2-5: Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	No impact	No mitigation measures would be required.	No impact
Impact 4.2-6: Would the Project result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15206(b)(3)) Public Resources Code?	Significant and unavoidable	**MM 4.2-2:** Prior to issuance of any grading or building permit or any use of the property for storage of materials or panels, payment for cancellation of all Williamson Act and/or Farmland Security Zone contracts shall be completed for the project development area or the period for nonrenewal shall have been completed and the identified parcels determined to no longer be under contract.	Significant and unavoidable
Impact 4.2: Cumulative Impacts	Significant and unavoidable	Implement Mitigation Measure MM 4.2-1 through MM 4.2-2, as described above, Mitigation Measure MM 4.9-1 (Section 4.9, *Hazards and Hazardous Materials*), and Mitigation Measure MM 4.10-1 (Section 4.10, *Hydrology and Water Quality)*.	Significant and unavoidable
4.3 Air Quality			
Impact 4.3-1: Would the Project conflict with or obstruct implementation of the applicable air quality plan?	Potentially significant	**MM 4.3-1:** The project shall continuously comply with applicable rules and regulations set forth by the San Joaquin Valley Air Pollution Control District. **MM 4.3-2:** Prior to issuance of any grading permit, the project proponent shall submit a Site-Specific Dust Control Plan for review and approval by the Kern County Planning and Natural Resources Department. The Site-Specific Dust Control Plan shall serve to minimize fugitive dust emissions during project construction. The Site-Specific Dust Control Plan shall take into consideration grading and construction schedule, seasonal winds, site-specific wind patterns and soil conditions to ensure adequate measures are implemented to manage fugitive dust. The Site-Specific Dust Control Plan shall: a. Identify a comprehensive phased grading schedule for the entire project site. When feasible, grading activities shall be phased and minimized to those areas necessary for project access and installation of solar panels and other areas of infrastructure associated with the solar facility. b. The Site-Specific Dust Control Plan shall identify, in addition to those measures required by the air district, all measures being undertaken during construction activities and operational activities to ensure fugitive dust being blown off-site is minimized. Measures may include, but are not limited to: 1. Use of water trucks as required for the expected level of winds in the area. 2. Use of dust suppressant (i.e., soil binders or mulch). 3. Pre-seeding and irrigating prior to construction to create vegetation with useful root structures. 4. Construction of dust screening in appropriate locations around the project site (i.e., fence slats or mesh screening).	Less than significant

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		5. A copy of the approved Site-Specific Dust Control Plan shall be kept at the on-site construction office and all measures included in the Site-Specific Dust Control Plan shall be included on all Grading Plans issued for the project by the Kern County Public Works Department. **MM 4.3-3:** Prior to the issuance of building and grading permits, the project proponent shall provide the Kern County Planning and Natural Resources Department with proof than an Indirect Source Review application has been approved by the San Joaquin Valley Air Pollution Control District. **MM 4.3-4:** Prior to the issuance of grading permits, the Owner/Operator shall enter into a Developer Mitigation Agreement (DMA) with the San Joaquin Valley Air Pollution Control District. The DMA is to fully mitigate construction and operations criteria air emissions of project implementation for project vehicle and other mobile source emissions. The Owner/Operator shall pay fees to fully mitigate project emissions of NOx (oxides of nitrogen), ROG (reactive organic gases), PM_{10} (particulate matter of 10 microns or less in diameter), and PM 2.5 (particulate matter of 2.5 microns or less in diameter) (collectively referred to as "designated criteria emissions") to avoid any net increase in these pollutants. The air quality mitigation fee shall be paid prior to the approval of any construction or grading approval or payment plan as designated by the San Joaquin Valley Air Pollution Control District. **MM 4.3-5:** The project proponent and/or its contractors shall continuously implement the following measures during construction and operation of the project to control emissions from the on-site equipment: a. All equipment shall be maintained in accordance with the manufacture's specifications. b. All equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for extended periods of time. Engine idling of all equipment shall be minimized. c. Construction equipment shall not operate longer than eight hours per day d. All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NO_X emissions. e. On-road and off-road diesel equipment shall use diesel particulate filters (or the equivalent) if permitted under manufacturer's guidelines. f. All on-site off-road equipment and on-road vehicles shall meet the recent California Air Resources Board engine emission standards or alternatively fueled equipment, such as compressed natural gas, liquefied natural gas, or electric, as appropriate. g. Tier 4 engines shall be used on all equipment when available. **MM 4.3-6:** Prior to commencement of any on-site construction activities (i.e., fence construction, mobilization of construction equipment, initial grading), including decommissioning, the project proponent shall provide written notice to the public through mailing a notice to all parcels within 1,000 feet of the project site, no sooner than 15 days prior to construction activities. The notices shall include the construction schedule, a telephone number and email address where complaints and questions can be registered. Additionally, a minimum of one sign, legible at a distance of 50 feet, shall also be posted at the construction sites or adjacent to the nearest public access to the main construction entrances throughout construction activities which include the construction schedule (updated as needed) and a telephone number where complaints can be registered. Documentation that the public notice has been sent and the sign has been posted shall be provided to the Kern County Planning and Natural Resources Department. **MM 4.3-7:** Prior to the issuance of any grading or building permit, the project proponent shall establish a "construction coordinator" and submit written documentation which includes their phone number, email address and mailing address. The construction coordinator shall be responsible for the following: a. Responding to any local complaints about construction activities. The construction coordinator shall determine the cause of the construction complaint and shall be required to implement reasonable measures such that the complaint is resolved. b. Ensuring all appropriate construction notices have been made available to the public and that all appropriate construction signs have been installed. c. Maintaining an ongoing up-to-date log of all construction-related complaints (i.e., blowing dust, inability to access parcels, etc.) during project construction activities. The log shall include the nature of the complaint and the measures that were undertaken to address the concerns. Upon request, the construction coordinator shall provide the log to the Planning and Natural Resources Department no later than three business days from request.	
Impact 4.3-2: Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standards?	Potentially significant	Implement Mitigation Measures MM 4.3-1 through MM 4.3-7.	Cumulative significant and unavoidable (Construction) Less than significant (Operation)
Impact 4.3-3: Would the Project expose sensitive receptors to substantial pollutant concentrations?	Potentially significant	Implement Mitigation Measures MM 4.3-1 through MM 4.3-7, as described above, and the following: **MM 4.3-8:** Prior to issuance of grading permits and ground disturbance activities, the project proponent shall submit to the Kern County Public Health Services Department for review and approval a Valley Fever Dust Management Plan that addresses the potential presence of *Coccidioides immitis* spores and mitigates for	Less than significant

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		the potential for *Coccidioidomycosis* (Valley Fever). The Plan shall include a program to evaluate the potential for exposure to Valley Fever from construction activities and to identify safety procedures that shall be implemented, as needed, to minimize personnel and public exposure to potential *Coccidioides immitis* spores. Measures in the Plan shall include the following: a. In consultation with the Kern County Public Health Services Department, the development of a Valley Fever Awareness handout for on-site workers and surrounding residents within 1,000 feet of the project site. The Valley Fever Awareness handout shall include the following information: 1. Potential sources/ causes of Valley Fever; 2. Common symptoms of Valley Fever; 3. Methods that may help prevent Valley Fever infection; 4. Options or remedies available should someone be experiencing symptoms of Valley Fever; and 5. Where testing for exposure is available. No less than 30 days prior to any work commencing, this handout shall be mailed to all existing residences within 1,000 ft. of the project boundaries. b. To the greatest extent feasible, provide High-Efficiency Particulate Air filters for heavy equipment equipped with factory enclosed cabs capable of accepting the filters. Require contractors utilizing applicable heavy equipment to furnish proof of worker training on proper use of applicable heavy equipment cabs, such as turning on air conditioning prior to using the equipment. c. Provide communication methods, such as two-way radios, for use in enclosed cabs. d. Require National Institute for Occupational Safety and Health- approved half-face respirators equipped with minimum N-95 protection factor for personnel use during surface disturbance activities, as required per the hazard assessment process. e. If respiratory protection is deemed necessary, the project proponent must develop and implement a respiratory protection program in accordance with Cal/OSHA's Respiratory Protection standard (8 CCR 5144), including but not limited to, employees to be medically evaluated, fit-tested, and property trained on the use of respirators. f. In consultation with Kern County Public Health Services Department, a protocol to medically evaluate employees who develop symptoms of Valley Fever. g. Install equipment inspection stations at each construction equipment access/egress point. Examine construction vehicles and equipment for excess soil material and clean, as necessary, before equipment is moved off-site. h. Wherever possible, grading and trenching work shall be phased so that earth-moving equipment is working well ahead or downwind of workers on the ground. i. The area immediately behind grading or trenching equipment shall be sprayed with water before ground workers move into the area. j. In the event that a water truck runs out of water before dust is sufficiently dampened, ground workers being exposed to dust shall leave the area until a truck can resume water spraying. k. Provide separate, clean eating areas with hand-washing facilities. l. Prohibit smoking at the worksite outside of designated smoking areas; designated smoking areas will be equipped with hand-washing facilities. **MM 4.3-9:** Prior to issuance of grading permits and ground disturbance activities, the project proponent shall provide evidence to the Kern County Planning and Natural Resources Department that the project operator and/or construction manager has developed a Valley Fever Awareness Training and schedule of sessions for education to be provided to all construction personnel. Training shall include: ▪ Measures within the approved Valley Fever Dust Management Plan; ▪ Potential sources/ causes of Valley Fever; ▪ Recognition of symptoms of Valley Fever; ▪ Methods that may help prevent Valley Fever infection; ▪ Proper use of Personal Protection Equipment; ▪ Promptly report suspected symptoms of work-related Valley Fever to a supervisor; ▪ Options or remedies available should someone be experiencing symptoms of Valley Fever; and ▪ Where testing for exposure is available. All evidence of the training session materials, handout(s) and schedule shall be submitted to the Kern County Planning and Natural Resources Department within 24 hours of the first training session. Multiple training sessions may be conducted if different work crews will come to the site for different stages of construction; however, all construction personnel shall be provided training prior to beginning work. The training may be administered using video or other electronic media. Evidence submitted to the Kern County Planning and Natural Resources Department regarding the Valley Fever Awareness Training shall include the following: a. A sign-in sheet(s) (to include the printed employee names, signature, and date) for all employees who attended the training session. b. A copy of the Valley Fever Awareness handout developed as part of the Valley Fever Dust Management Plan to be distributed.	

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		c. Evidence of employee training on the proper use of personal protective equipment may be via printed training materials/agenda, DVD, digital media files, or photographs. d. Evidence of training shall be provided to the Kern County Planning and Natural Resources Department within 5 days after the training session. **MM 4.3-10:** Prior to the issuance of grading permits, a one-time fee shall be paid to the Kern County Public Health Services Department in the amount of $3,200 for Valley Fever public awareness programs. **MM 4.3-11:** At the time of project implementation, a COVID-19 Health and Safety Plan should be prepared in accordance with the Kern County Public Health Services Department and Kern County Health Officer mandates. A copy of the COVID-19 Health and Safety Plan shall be submitted to the Kern County Planning and Natural Department for review and approval.	
Impact 4.3-4: Would the Project result in other emissions such as those leading to odors adversely affecting a substantial number of people?	Less than significant	No mitigation would be required.	Less than significant
Cumulative Impacts	Potentially significant	Implement Mitigation Measures MM 4.3-1 through MM 4.3-11.	Cumulative significant and unavoidable (Construction) Less than significant (Operation)
4.4 Biological Resources			
Impact 4.4-1: Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or a special-status species in local or regional plans, policies, or regulations or by California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Potentially significant	**MM 4.4-1:** Prior to the issuance of grading or building permits , and prior to decommissioning, the project operator shall retain a Lead Biologist(s) who meets the qualifications of an Authorized Biologist as defined by U.S. Fish and Wildlife Service to oversee compliance with protection measures for all listed and other special-status species that may be affected by the construction, operation, and decommissioning of the project. The contact information for the Lead Biologist(s) shall be provided in writing to the Planning and Natural Resources Department. The following measures pertain to the Lead Biologist(s): a. The Lead Biologist(s), or their designee, shall be on the project site during all construction activities which include, but are not limited to, installation of perimeter fencing, clearing of vegetation, grading activities, site buildout, and decommissioning. b. The Lead Biologist(s) or their designee shall have the right to halt all activities that are in violation of the special-status species protection measures, as well as any regulatory permits from the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife, if applicable. Work shall proceed only after hazards to special-status species are removed and the species is no longer at risk. **MM 4.4-2:** Prior to the issuance of grading or building permits, or decommissioning of the site, the Lead Biologist shall develop a Worker Environmental Awareness Training Program containing life history and identification information of special-status wildlife and plant species with potential to occur on site. The Worker Environmental Awareness Training Program shall review responsibilities for all on-site personnel including trash control, checking under and around vehicles and heavy equipment before starting, scanning for wildlife resources, contacting the Lead Biologist in the unanticipated instance of encountering special status wildlife species, and prohibition of pets and firearms. All on-site personnel shall be required to attend a worker environmental training. A sticker shall be placed on hard hats, indicating that the worker has completed the Worker Environmental Awareness Training. Copies of all prepared materials including, but not limited to, PowerPoint presentations, videos, information handouts and signed acknowledgement from each worker who has attended the required training shall be provided to the Planning and Natural Resources Department. **MM 4.4-3:** During construction and decommissioning of the Project site, the Project proponent and/or contractor(s) shall implement the following general avoidance and protective measures: a. Immediately prior to conducting vegetation clearing or similar activities, the Lead Biologist or their designee shall perform a pre-construction visual survey of the area to ensure that no special-status species are present. Daily reports of these inspections shall be retained by the Lead Biologist and provided to the Kern County Planning and Natural Resources Department, U.S. Fish and Wildlife Service, or California Department Fish and Wildlife upon request. b. Within the vicinity of any construction activities, sensitive biological resources (i.e., special-status species, jurisdictional drainages, nesting birds, etc.) shall be delineated with stakes and/or flagging.	Less than significant

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Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		c. Access roads that are planned for use during construction activities shall not extend beyond the planned impact area, which area includes all previously disturbed lands and any location within the project fence line not delineated for avoidance of sensitive biological resources. Where new access routes are required, the route will be clearly marked prior to construction. d. The project proponent/operator shall minimize the areas of disturbance. Parking areas, new roads, staging, storage, excavation, and disposal site locations shall be confined to the smallest areas possible. These areas shall be demarcated, and disturbance activities, vehicles, and equipment shall be confined to these areas. e. Any spoils shall be stockpiled in disturbed areas that lack native vegetation to the maximum extent practicable. Spoils that have been stockpiled and inactive for more than 24 hours shall be inspected by a qualified biologist for signs of special-status wildlife before moving or disturbing. f. To prevent inadvertent entrapment of San Joaquin kit foxes, American badgers, or other animals during construction, all excavated steep-walled holes or trenches more than 2 feet deep shall be covered with plywood or similar materials at the close of each working day. If holes or trenches cannot be covered, one or more escape ramps constructed of earthen fill or wooden planks, no less than 12 inches wide and secured at the top, shall be placed a minimum of every 100 feet within the open trench. Covered and non-covered holes or trenches shall be thoroughly inspected for trapped animals by a qualified biologist at the beginning and end of each working day. Immediately g. All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at the site for more than 24 hours and without endcaps shall be thoroughly inspected by a qualified biologist prior to being moved or capped. If a listed wildlife species is discovered inside a pipe, that section of pipe shall not be moved until a qualified biologist has been consulted and the animal has either moved from the structure on its own accord or until the animal has been captured and relocated in conformance with appropriate wildlife agency guidelines. h. No vehicle or equipment parked on the project site shall be moved prior to inspecting the ground beneath the vehicle or equipment for the presence of listed wildlife species. If present, the animal shall be left to move on its own. i. A speed limit of 15 miles per hour shall be enforced within the limits of the project site. If night work occurs on the project site, the speed limit will be 10 miles per hour. j. Fueling of equipment shall take place within existing roads or disturbed areas. No refueling within or adjacent to drainages (within 150 feet) shall be permitted. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary. k. Trash and food items shall be contained in closed containers to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs. l. Workers shall be prohibited from bringing pets and firearms to the project site and from feeding wildlife. m. Intentional killing or collection of any listed plant or wildlife species shall be prohibited. n. Herbicides that may be used as vegetation control measures in project areas shall be restricted. All uses of such herbicidal compounds shall observe label and other restrictions mandated by the U.S Environmental Protection Agency, California Department of Food and Agriculture, and state/federal legislation as well as additional Project-related restrictions deemed necessary by the U.S. Fish and Wildlife Service or CDFW. No rodenticides shall be used on the project site. **MM 4.4-4:** Prior to the start of ground disturbance activities or decommissioning of the main project site, a qualified biologist knowledgeable on the identification of rare plant species shall conduct a pre-construction plant survey of areas of proposed disturbance within the main project site and a 100-foot buffer (where legally accessible) timed during the appropriate blooming period of the target species (March to May for Kern mallow, and February to April for alkali-sink goldfields) prior to start of construction activities in this area to determine if any special status plant species are present. If special-status plants are not identified during the survey(s), no further action is required. If special-status plants are identified on-site, their locations shall be mapped and Ecologically Sensitive Area (ESA) fencing should be established at a 50-foot radius around these individuals to ensure that they are not destroyed during project construction activities. Pursuant to Section 1913(c) of the California Fish and Game Code, if project activities cannot avoid direct impacts to special-status plants, CDFW shall be notified and provided the opportunity to salvage any of these plants that would be affected. The CDFW may enter into agreement with the project proponent to retain a qualified entity for the relocation of sensitive plants to an approved location. Any salvage would be undertaken in accordance with a salvage plan to be developed in consultation with CDFW. The plan would include methods for transplanting and watering (if appropriate), success criteria for salvaged plants, monitoring the health and survivorship of salvaged plants during at least 5 years following salvage, and contingency measures if plant survivorship requirements are not satisfied. Prior to initiating ground-disturbing activities during the construction and decommissioning phases of the Project in areas mapped as occupied by Kern mallow, after seeds have set (usually by May 31) remove and stockpile the uppermost 3-6 inches of topsoil. The stockpiled material shall be spread in the affected area, the closest comparable area, or the closest suitable habitat outside the footprint of roads, buildings, and structures prior to the next blooming season. During the operational phase of the Project, vegetation and/or fuel management activities within Kern mallow occupied habitat shall be undertaken subsequent to after seeds of Kern mallow have set (usually by May 31). The project proponent shall mitigate for impacted occupied Kern mallow habitat. Compensatory mitigation land shall be provided at a ratio of 1:1 acre on-site or at a nearby location with comparable habitat value. Individual Kern mallow plants and/or seeds will be salvaged from the project site and translocated to the compensatory mitigation lands if authorized by appropriate wildlife agency. Final total compensation land acres will be based on final site plan design and confirmation through the required pre-construction biological surveys. Mitigation land may be nested with other lands established as	

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Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		compensatory mitigation for other resources, provided it meets the necessary biological requirements and as determined by appropriate wildlife agency. Prior to issuance of any building or grading permit, the project proponent shall (i) complete acquisition of such compensatory mitigation lands or equivalent mitigation credits applicable to the portion of the project covered by said grading or building permit; or (ii) provide a bond, letter of credit or other form of financial assurance acceptable to the County in an equivalent amount and acquire such lands or credits within eighteen (18) months of issuance of said building or grading permit. **MM 4.4-5:** Prior to initial ground disturbance, the applicant shall develop a plan to minimize the spread of invasive species and reduce dust that could spread invasive species. The plan shall be approved by the Kern County Planning and Natural Resources Department. The plan shall include methods and a plan to minimize introduction and spread of invasive and non-native plant species. The spread of invasive species and their seeds shall be avoided and controlled, through the use of watering or soil stabilizer(s) during construction. Watering and soil stabilizer(s) shall be used in areas under construction (i.e. active grading, trenching, etc.) or unpaved or non-gravel roadways (dirt) being used to transport or move materials and machinery within the project site. In addition, construction entrances and exits shall be stabilized (using rip-rap and/or metal grates) to minimize off-site transport of materials that may contain invasive species or seeds. If invasive species are located during construction, they shall be removed from the project site during construction. All plants shall be removed from the site and disposed of in a manner that prohibits their spread on-and off-site. Areas where invasive plants are removed and cleared during construction will not be used for project activities or needed for access (i.e., roadways); and will be revegetated with an application of a native seed mix prior to or during seasonal rains to promote passive restoration of the area to pre-project conditions. Prior to removal and destruction of invasive plants or reseeding temporary ground disturbance areas, the qualified biologist will review the removal and destruction plan and seeding palette to ensure that no seeding of invasive plant species, as identified in the most recent version of the California Invasive Plant Inventory for the region, will occur. During Operations, an annual weed and invasive species control program shall be implemented within the project site. **MM 4.4-6:** To reduce any indirect impacts to special-status plants that may be in the project footprint, BMPs shall be implemented to control dust pollution, prevent discharge of potentially harmful chemicals, and prevent changes in hydrology. BMPs shall be consistent with the California Stormwater Quality Association (CASQA) 2023 Construction BMP Handbook, or most current version of this document, and shall include, but not be limited to, installing erosion and sedimentation control devices, applying water to control dust, placing drip pans under equipment when not in use, refueling in designated areas, and appropriate disposal of concrete debris and washout, among other practices. **MM 4.4-7:** Within 14 days of the initiation of ground disturbance or vegetation clearing on, and/or adjacent to project areas, a preconstruction survey shall be conducted by a qualified biologist, knowledgeable in the identification of all special-status plant and wildlife species with the potential to occur on site. Surveys shall be appropriate for detecting potentially occurring species, such as but not limited to American badger, San Joaquin kit fox, San Joaquin antelope squirrel, blunt-nosed leopard lizard, Bakersfield legless lizard, California glossy snake, coast horned lizard, and San Joaquin coachwhip. Other special-status species shall be avoided during all phases of the proposed project in accordance with the specific avoidance measures listed below. If western spadefoot toad becomes federally listed, the relocation would require an ITP. Surveys need not be conducted in all areas simultaneously, as long as they are conducted within 14 days of the initiation of ground disturbance or vegetation clearing in each area individually. If special-status species are detected, appropriate buffers shall be established, as necessary and as appropriate for the species, unless it is not feasible to avoid the species. If non-listed special-status wildlife species are detected, they shall be captured and relocated to suitable habitat nearby where they are safe from project activities. Surveys and relocation of these species shall be conducted only by the qualified project biologist. **MM 4.4-8:** A pre-construction survey for Crotch's bumble bee shall occur within the project areas where suitable habitat has been identified during the primary flight period for workers and males (March 1 through June 30) prior to the start of project activities. The survey shall ensure that no nests for Crotch's bumble bee are located within the project areas. Crotch's bumble bee is a habitat generalist, ground-nesting bee. Surveys and other relevant recommendations shall be in accordance with the most recent protocol available at the time of the surveys. If nest resources occupied by Crotch's bumble bee are detected within the project areas, no ground disturbing activities shall occur within 100 feet of the occupied nest resources, or as determined by a qualified biologist through evaluation of topographic features or distribution of floral resources. The nest resources shall be avoided for the duration of the Crotch's bumble bee nesting period (February 1 through October 31). Outside of the nesting season, it is assumed that no live individuals would be present within the nest, because the daughter queens (gynes) usually leave by September, and all other individuals (original queen, workers, males) die. The gynes are highly mobile and can independently disperse to outside the project footprint to the proposed open space or other suitable areas beyond that have suitable hibernaculum resources. Because construction will have occurred in the area outside the occupied nesting resources, no suitable habitat will be present in the impact area, and it is assumed that new queens will disperse to habitat outside the project areas. If take cannot be avoided, take authorization prior to any ground disturbing activities is warranted. Take authorization would occur through issuance of an ITP by CDFW, pursuant to Fish and Game Code section 2081(b). **MM 4.4-9:** Prior to the initiation of ground disturbing activities, protocol-level surveys for federally listed large branchiopods in suitable habitat (Sites 2, 3, and 8), shall be conducted in accordance with guidance outlined in the 2017 U.S. Fish and Wildlife Service Survey Guidelines for Listed Large Branchiopods (USFWS	

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Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		2017). Surveys shall include mapping areas of suitable habitat in the project site and conducting both wet season sampling and dry season sampling. Survey notification shall be submitted to the regional USFWS office for survey approval. Wet season sampling shall begin with the onset of the rainy season and shall include inundation checks prior to full survey efforts. Once potential habitat has been inundated for the appropriate time, surveys shall commence in all appropriate habitat on-site every 10 days until it dries or a minimum of 90 consecutive days of inundation has occurred, whichever occurs first. Sampling shall be reinitiated within 10 days of an individual habitat drying and inundating during the same wet season. Dry season surveys entail soil sample collection and processing from individual habitat within 90 days of completion of surveys. If surveys are negative, nothing further is required. If surveys are positive, the full extent of listed branchiopod occurrence within the survey area shall be recorded using GPS. The location of occupied features shall be mapped and the number of individuals for each occurrence documented. The outer extent of each occupied listed branchiopod feature shall be flagged at the time of the survey. If full avoidance is infeasible then consultation with USFWS shall occur, and/or take authorization may be obtained from USFWS through Section 7 consultation, if applicable, or a Section 10 habitat conservation plan for impacts to federally listed branchiopods. Avoidance, minimization, and mitigation measures shall be implemented and shall include, at a minimum, the following: a. Establishment of Environmentally Sensitive Areas (ESAs). Prior to the start of Project activities, a qualified biologist shall establish ESAs to protect and avoid occupied federally listed branchiopod habitat area that occur outside of the Project disturbance areas and within 250 feet of project disturbance areas. The locations of ESAs shall be clearly delineated through brightly colored fencing or other highly visible means and shall include a designated avoidance buffer developed in consultation with USFWS to prevent construction from affecting the vernal pool and its associated watershed. Any employee responsible for any phase of the proposed project shall be directed not to encroach beyond the limits of project activities. b. Monitoring. A qualified biologist shall be present during project activities within 250 feet of occupied or assumed occupied vernal pool habitat(s) to conduct daily monitoring of the ESAs that protect occupied federally listed branchiopod habitat. The monitor shall have the authority to stop project activities in the vicinity (within 250 feet) of an ESA if it is determined as a result of monitoring that corrective actions are necessary to avoid and protect the ESA. c. BMPs. All fueling and maintenance of vehicles and other equipment and staging areas shall occur at least 250 feet from vernal pool or aquatic habitat. d. Compensatory Mitigation. If avoidance is not feasible, the project shall abide by all conditions imposed by USFWS resulting from the consultation process. Such conditions may include preparation of a mitigation monitoring and management plan and/or creation/restoration/enhancement of suitable vernal pool habitat. Alternatively, impacts to occupied listed branchiopod habitat may be mitigated by purchasing mitigation credits at a minimum replacement value of 1:1 for temporary and permanent impacts using a USFWS-approved mitigation bank for listed branchiopods. **MM 4.4-10:** Prior to the initiation of ground disturbing activities, a pre-construction survey to determine if potential breeding resources occur for western spadefoot (for example, temporary puddles, stock ponds, slow-moving water courses) shall be performed prior to the rainy season before start of project activities. The following requirements (Items a through e) shall be implemented if the project area or its immediate vicinity is determined to contain suitable habitat for the western spadefoot. If no potential habitat for western spadefoot is found during the survey, no further mitigation is required. a. If potentially suitable breeding areas for western spadefoot are identified, a 1,500-foot survey buffer, by locked construction fencing appropriate for amphibian exclusion, shall be installed around the project areas and breeding area. A pre-activity daytime and nighttime pond check and pre-activity nighttime surveys for western spadefoot shall be conducted the winter prior to ground disturbing activities within the project areas. Surveys for spadefoot will begin during or the night after the first three significant rain (≥ 0.25 inches) events, as early as October or November, though peak breeding season typically occurs February through April. Surveys for spadefoot eggs and tadpoles can be done during the day and do not require nighttime surveys. b. Daytime surveys will be conducted by walking slowly along pool margins visually searching for (but not disturbing) eggs, larvae, and juveniles. Spadefoot may breed in a variety of ephemeral and perennial habitats from side pools of large rivers to road ruts. c. Nighttime surveys will occur between one hour after dusk and midnight and should be timed either during a rain event or the night after a rain event. Nighttime surveys (assuming eggs, larvae, and/or juveniles have not been detected) will be conducted by walking slowly and carefully along water features and between and through suspected breeding and upland habitats. d. Transect-based nocturnal eyeshine surveys shall be conducted for upland nighttime surveys. These are performed through adjacent upland habitat within 1,500 feet of breeding locations or known occupied areas, using an approximate 30-meter transect width (less if there is denser grass and/or shrubs). Surveys must be conducted as silently as possible, because talking or other human-generated noises may cause western spadefoots to stop calling, hide, or leave the area. The surveyor shall rotate 360 degrees approximately every 200–300 meters (within the limits of their headlamp) and look backward along their transect with more frequency as the toads may watch the surveyor as they pass. Strong headlights or flashlights held at surveyor eye level should be used to visually locate and identify adult western spadefoots, and flash photography may be used to document sightings of solitary individuals. e. If western spadefoot is detected during surveys, defined in Item a through d, within the Project footprint, then biologists shall collect western spadefoot adults for relocation. Adults shall be relocated outside the Project footprint to portions of open space that have suitable breeding habitat and appropriate upland habitat, are of suitable size to support the translocated individuals, and contain few or no western spadefoot individuals. A relocation plan shall be prepared	

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		and approved by the wildlife agencies and lead agency prior to implementation. The plan shall include details regarding specifically how the western spadefoot will be captured, held, moved, and released; where they will be released; what data will be collected regarding the released individuals; timing; reporting; and other important factors. Relocation of western spadefoot shall follow the latest amphibian handling guidelines provided by the USGS. It is advisable to also capture and release other native herpetofauna that are found. Implementation of this may require a Memorandum of Understanding and/or Scientific Collecting Permit from CDFW and, if listed under the ESA, a Section 10 take permit from USFWS. f. If no western spadefoot are detected as a result of the surveys, then the fenced buffer may be removed. **MM 4.4-11:** Within one calendar year of the start of ground disturbance activities, a qualified biologist shall conduct protocol level surveys for the Blunt-Nosed Leopard Lizard (BNLL) to determine the potential for occupancy by BNLL. The required surveys shall be provided to the Kern County Planning and Natural Resources Department, the U.S Fish and Wildlife Service and the California Department of Fish and Wildlife. If no sign of the species is identified, no further action is required. If the species is identified on-site, the project proponent shall confer with the appropriate wildlife agency. Surveys may be conducted in areas of disturbance and needed buffers as work progresses or in stages as needed during the construction phase. If surveys indicate that BNLL and appropriate burrow habitat are absent, the construction area(s) can be fenced using materials and installing temporary wildlife exclusion fencing in compliance with agency specifications to prevent potential occupancy of BNLL in active construction work areas. If BNLL are found within the survey areas, measures to protect the species shall include appropriate signage, monitoring by approved qualified biologists and consultation with the USFWS and the CDFW to develop a BNLL avoidance plan. If burrows are found to be occupied, measures for avoidance and minimization of impact to BNLL shall be written in compliance with recommendations provided during agency consultations and shall contain project specific details. Project actions in areas where BNLL are located shall be restricted to the species active period (April to early November) to ensure that no aestivating BNLL in burrows are impacted while in their burrows. In conjunction with CDFW or other involved agencies, sensitive areas shall be established and protected with appropriate signage. If take cannot be avoided, the project proponent shall confer with the appropriate wildlife agency and obtain an Incidental Take Permit pursuant to both Section 10(a)(1) of the federal Endangered Species Act and SB 147. **MM 4.4-12:** Pre-construction surveys shall be conducted by a qualified biologist of all potential nesting habitat within the project site no more than 14 days prior to commencement of ground disturbing activities within the project site during the nesting bird season (i.e., February 1 to September 15). If construction is scheduled to commence during the non-nesting season, no pre-construction surveys or additional measures are required. Surveys need not be conducted for all areas of suitable habitat at one time; they may be phased so that surveys occur within 14 days prior to that portion of the project site disturbed. Surveys shall cover a sufficient area around the work site to identify nests and determine their status. A sufficient area means any area potentially affected by a project. In addition to direct impacts (i.e., nest destruction), noise, vibration, odors, and movement of workers or equipment could also affect nests. Prior to initiation of construction activities, a qualified biologist shall conduct a survey to establish a behavioral baseline of all identified nests and confirm site conditions have not changed. If construction is scheduled to commence during the non-nesting season for any nesting birds (i.e., September 16 to January 31), no preconstruction surveys or additional measures are required. The surveying biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance. The raptor survey shall focus on potential nest sites (e.g., large trees, windrows) within a 0.5-mile buffer around the project site. A tricolored blackbird nest colony survey shall occur within suitable habitat. Tricolored blackbird nesting season in the San Joaquin Valley is March to mid-June, though most colonies begin nesting in late March. Suitable habitat shall be assessed in March with three follow-up surveys occurring April through June, comprising a total of four surveys of each location. The Swainson's hawk nest survey shall focus on potential nest sites within a 0.5-mile buffer around the project site and follow the 2000 Swainson's hawk protocol for the Central Valley (SWHA Technical Advisory Committee [TAC] 2000). Surveys shall encompass the project site plus the potential nest buffers as listed above, where access has been granted. If active nests are found, a suitable no-disturbance buffer (e.g., 500 feet for common raptors; 0.5 miles for Swainson's hawk; 250 feet for non-raptor species shall be established around active nests until a qualified biologist has determined that the nest is no longer active (e.g., the nestlings have fledged and are no longer reliant on the nest). For non-listed species, encroachment into the avoidance buffer may occur at the discretion of a qualified biologist provided the biologists has monitored the nest prior to construction to establish a behavioral baseline and continues to monitor the nest during construction to ensure the nest is not negatively affected. Buffer distances can also be adjusted if there is a compelling biological reason such as when a construction area would be concealed from a nest site by topography or vegetation as determined by a qualified biologist. For State-listed species, consultation with CDFW shall occur prior to encroachment into the aforementioned buffers. Unavoidable impacts to occupied tricolored blackbird habitat shall be compensated in conjunction with mitigation for the loss of RWQCB/CDFW jurisdictional aquatic resources, as outlined in Mitigation Measure MM 4.4-23 below. If an active Swainson's hawk nest is detected and a 0.5-mile no disturbance buffer is not feasible, CDFW will be consulted to discuss how to implement the project and avoid take. If take cannot be avoided consultation to receive an ITP for SWHA shall be performed.	

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

<table>
<tr><th>Impact</th><th>Level of Significance before Mitigation</th><th>Mitigation Measures</th><th>Level of Significance after Mitigation</th></tr>
<tr><td></td><td></td><td>
MM 4.4-13: Burrowing Owl Burrow Setbacks. Occupied burrowing owl burrows shall not be disturbed during the species nesting season (February 1 through August 31). The following distances shall be maintained between all disturbance areas and burrowing owl nesting sites.
<table>
<tr><td colspan="3">Time of Year</td></tr>
<tr><td>April 1–Aug 15</td><td>Aug 16–Oct 15</td><td>Oct 16–Mar 31</td></tr>
<tr><td colspan="3">Project Impact Level</td></tr>
<tr><td colspan="3">Low</td></tr>
<tr><td>656 feet (200 meters)</td><td>656 feet (200 meters)</td><td>164 feet (50 meters)</td></tr>
<tr><td colspan="3">Medium</td></tr>
<tr><td>1,640 feet (500 meters)</td><td>656 feet (200 meters)</td><td>328 feet (100 meters)</td></tr>
<tr><td colspan="3">High</td></tr>
<tr><td>1,640 feet (500 meters)</td><td>1,640 feet (500 meters)</td><td>1,640 feet (500 meters)</td></tr>
</table>
Burrowing owls present in proposed disturbance areas or within 500 feet or as specified under an ITP (as identified during pre-construction surveys) outside of the breeding season (between September 1 and January 31) may be moved away from the disturbance area using passive relocation techniques approved by CDFW. Passive relocation techniques in the CDFW's Staff Report on Burrowing Owl Mitigation Guidelines (CDFG 2012) include installing one-way doors in burrow entrances for 48 hours, to ensure the owl(s) have left the burrow, daily monitoring during the passive relocation period, and collapsing existing burrows to prevent reoccupation. A minimum of one or more weeks will be required to relocate the owl(s) and allow for acclimatization to alternate off-site burrows. Prior to burrow exclusion or eviction, the Project proponent shall prepare a burrowing owl management plan for CDFW's review and approval. Destruction of burrows shall occur only pursuant to a CDFW-approved management plan for the species; burrow excavation shall be conducted by hand whenever possible.

As an alternative to passive relocation, occupied burrows identified off-site within 500 feet of Project activities may be buffered with hay bales, fencing (for example, sheltering in place), or as directed by the qualified biologist (and CDFW if the species remains protected under CESA), to avoid disturbance of burrows.

MM 4.4-14: If guy wires are required for any project infrastructure, such use shall be minimized to the extent possible. Any guy wires shall be installed with bird flight diverters at no less than 15-foot spacing to reduce the potential for collision with flying birds.

MM 4.4-15 For any construction or decommissioning of solar panel fields within the project footprint, access roads, and tower locations for the generation tie (gen-tie) line routes in non-cultivated habitat, undeveloped land types shall be surveyed prior to ground disturbing activities to determine measures to avoid suitable kangaroo rat burrows to the extent practicable. Avoidance is not required for previously developed or heavily disturbed areas, such as existing roads, compacted surfaces, or other infrastructure. If avoidance is not feasible, surveys for giant and Tipton kangaroo rat species and San Joaquin antelope squirrel would first include a more focused habitat assessment to identify where suitable burrow clusters occur as described below.

To avoid potential impacts to the federally and state-listed Tipton kangaroo rat, giant kangaroo rat, and San Joaquin antelope squirrel all trapping efforts shall be conducted by qualified Biologists in accordance with the USFWS 2013-approved Survey Protocol (USFWS 2013). The following measures shall be implemented:

A qualified Biologist shall identify up to 1,000 trap locations in areas with the highest quality habitat within a 10 percent sample area (approximately 48.2 acres). No more than 100 traps shall be managed by each biologist per trapping session.
Traps shall be baited with sterilized proso millet to prevent germination and shall be checked at least once per night or more frequently as required by the Biologist's Memorandum of Understanding and/or recovery permits.
All captured Tipton kangaroo rat, giant kangaroo rat, or San Joquin antelope squirrel individuals shall be immediately released into a nearby suitable burrow. Trapping shall cease within a zone once presence of Tipton kangaroo rat, giant kangaroo rat, or San Joquin antelope squirrel has been confirmed in that zone.
Trapping shall occur during the species' peak activity period (April 1–October 31) for up to 5 consecutive nights. If a target species is captured earlier, trapping will cease in that zone.
All traps shall be closed during inclement weather, including a forecast of 40 percent or greater chance of rain, temperatures exceeding 105°F, or dropping below 50°F. When temperatures drop below 50°F, traps shall be checked at least every 3 hours, and supplemented with unbleached paper towels and additional food. Trapping shall cease if captured animals show signs of hypothermia.
If a lactating female or dependent young is captured, trapping will immediately cease in the area, at the discretion of the Permitted Biologist.
A 50-foot buffer shall be established around all anthropogenic features (for example, roads, pipelines) for safety.
All trapping efforts shall be documented using standardized data sheets. Observations shall include biologist name, date, trap times, weather conditions,

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Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		and species data (for example, GPS location, time of capture, sex, age, weight, and general health). ▪ A CNDDB report shall be submitted within 60 days for any captures of listed species. A brief trapping report shall be submitted to, CDFW, and USFWS for review and approval. If it is determined that giant kangaroo rat, Tipton kangaroo rat, and/or San Joquin antelope squirrel are absent, then no further measures are warranted. If present, the following measures shall be implemented: ▪ The loss of occupied habitat shall be compensated at an agreed-upon ratio with the CDFW and USFWS. ▪ Consultations with USFWS and CDFW shall occur, and ITPs shall be acquired if take of listed species cannot be avoided. ▪ If Tipton kangaroo rat, giant kangaroo rat, or San Joquin antelope squirrel are detected, a Relocation Plan shall be prepared by a qualified biologist and reviewed by and implemented in consultation with USFWS and CDFW. **MM 4.4-16** Within 14 days prior to the start of project ground-disturbing activities, a pre-activity survey with a 500-foot buffer where land access is permitted shall be conducted by a qualified biologist knowledgeable in the identification of these species and approved by CDFW. Surveys need not be conducted for all areas at one time; they may be phased so that surveys occur within 14 days of the portion of the project site that will be disturbed. If dens/burrows that could support any of these species are discovered during the pre-activity survey, the avoidance buffers outlined below shall be established. No work shall occur within these buffers unless the biologist approves and monitors the activity. **Burrowing Owl (Active Burrows)** Nonbreeding season (September 1–January 31): 160 feet Breeding season (February 1–August 31): 250 feet **American Badger/San Joaquin Kit Fox** Potential or atypical den: 50 feet Known den: 100 feet Natal or pupping den: 500 feet, unless otherwise specified by CDFW and/or USFWS If burrowing owls are detected, a Burrowing Owl Management and Relocation Plan shall be prepared by a qualified biologist and reviewed by, and implemented in consultation with, CDFW. Unless otherwise approved by CDFW, disturbance to occupied burrows shall be avoided. Disturbance to suitably sized burrows (>11 cm wide) shall be avoided during the breeding season (February 1 through August 31) unless proven to be unoccupied. Buffers shall be established around occupied burrows in accordance with guidance provided in CDFG's Staff Report on Burrowing Owl Mitigation (CDFG 2012: or most recent guidance). No Project activities shall be allowed to encroach into established buffers without the notification to CDFW. The buffer shall remain in place until it is determined that occupied burrows have been vacated. Outside of the nesting season (September 1 through January 31), passive owl relocation techniques as outlined in the Burrowing Owl Management and Relocation Plan shall be implemented with notification to CDFW. As directed above, if impacts to burrowing owl or San Joaquin kit fox cannot be feasibly avoided, the project proponent will confer with CDFW/USFWS to determine if take authorization from CDFW/USFWS through the CESA and/or ESA ITP process or other agency-approved method is recommended. If recommended, the ITP or other agency-approved permit shall provide suitable avoidance and minimization measures to reduce potential impacts, and adequate mitigation. Mitigation of occupied habitat at a ratio to be determined in consultation with the appropriate agencies may be through on- or off-site preservation with permanent protection and long-term funding, or through purchase of equivalent credits through a mitigation bank if available in addition to implementing all other measures and conditions of the permit. **MM 4.4-17:** All permanent fencing installed on the perimeter of the main project site during operations will be designed to allow for passage of San Joaquin Kit Fox (SJKF), their prey and other wildlife, while impeding the passage of larger predators such as coyotes and similar species. Chain link fencing shall be installed with a four inch gap from the bottom of the fencing material and shall be knuckled back to form a smooth edge, or with 4- to 7-inch portals at an appropriate height for use by species such as San Joaquin kit fox and American badger. Perimeter fencing shall not be electrified. Alternate designs may also be constructed with documentation of coordination with California Department of Fish and Wildlife (CDFW) and United States Fish and Wildlife Service (USFWS) and demonstration that comments provided by the Agencies have been considered and addressed. **MM 4.4-18:** In the unanticipated event of any fuel or hazardous waste leaks or spills, the project proponent/operator shall immediately stop work in the affected area and, pursuant to pertinent federal and state statutes and regulations, arrange for repair and cleanup by qualified individuals at the time of occurrence, or as soon as it is safe to do so.	

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		MM 4.4-19: Prior to the issuance of grading or building permits, the project proponent/operator shall, in consultation with the qualified biologist, clearly delineate the boundaries of construction and decommissioning activities with fencing, stakes, or flags, consistent with grading and construction plans, within which project impacts will take place. All impacts outside the fenced, staked, or flagged areas shall be avoided, and all fencing, stakes, and flags shall be maintained until the completion of impacts in that area. **MM 4.4-20:** Lighting for project activities and operations within 50 feet of the outside edge of the impact footprint containing habitat for special-status wildlife shall be directed away from natural areas and, pursuant to Mitigation Measure MM 4.1-5, be in compliance with Kern County's Dark Skies Ordinance to minimize nighttime light in unincorporated areas of Kern County. **MM 4.4-21:** Mapped CDFW-designated sensitive communities should be avoided to the maximum extent possible. Any CDFW-designated sensitive communities that are directly and permanently impacted shall be mitigated at a ratio of 2:1 acre on-site or at a nearby location with comparable habitat value. Prior to the issuance of a grading permit for construction and decommissioning activities, if full avoidance of the three CDFW-designated sensitive vegetation communities is not feasible, direct impacts shall be mitigated as follows: ▪ Direct permanent impacts on up to 192.5 acres of bush seepweed scrub shall be mitigated at a 2:1 ratio (up to 385.0 acres, depending on final impacts) ▪ Direct permanent impacts on up to 0.2 acres of spinescale scrub shall be mitigated at a 2:1 ratio (up to 0.4 acres, depending on final impacts) ▪ Direct permanent impacts on up to 12.3 acres of tar plant fields shall be mitigated at a 2:1 ratio (up to 24.6 acres, depending on final impacts) Impacts shall be mitigated through one or more of the following as determined through consultation with the Kern County Planning and Natural Resources Department: preservation, restoration, enhancement, or establishment/re-establishment. **MM 4.4-22:** Prior to issuance of any grading or building permit, the project proponent/operator shall submit a final aquatic resources delineation report to Kern County. A copy of this report shall also be provided to the Central Valley Regional Water Quality Control Board and the California Department of Fish and Wildlife. The report shall include delineation of all potential state and federal jurisdictional features at the project site. Potential jurisdictional features within the project boundary identified in the jurisdictional delineation report may be shown in plan form. Any determination on the basis of the final project design relative to the final delineation report that the project will impact state or federal jurisdictional aquatic resources shall require the project proponent to obtain all necessary permits/authorizations from the appropriate regulating agencies (Regional Water Quality Control Board, and the California Department of Fish and Wildlife to impacting state or federal jurisdictional features. Any material/spoils generated from project activities containing hazardous materials will be located away from state and federal jurisdictional waters and special-status habitat and protected from storm water run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate. Equipment containing hazardous liquid materials will be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage from contaminating the ground and at least 50 feet outside the delineated boundary of jurisdictional water features. **MM 4.4-23:** Prior to ground disturbance activities that would impact aquatic features, the project proponent/operator shall be subject to provisions as identified below: a. The project proponent/operator shall file a complete Report of Waste Discharge with the RWQCB to obtain Waste Discharge Requirements and shall also confer with California Department of Fish and Wildlife (CDFW) on the need for a lake streambed alteration agreement. Copies of reports shall be submitted to the County. b. Based on conferral with RWQCB and CDFW, if permits are required for the project site, appropriate permits shall be obtained prior to disturbance of jurisdictional resources. c. Compensatory mitigation for impacts to unvegetated streambeds/washes shall be identified prior to disturbance of the features and implemented at a minimum 1:1 ratio, as approved by the RWQCB or CDFW either through onsite or offsite mitigation, or purchasing credits from an approved mitigation bank. d. The project proponent/operator shall comply with the compensatory mitigation required and proof of compliance, along with copies of permits obtained from RWQCB and/or CDFW, shall be provided to the County. e. A Habitat Mitigation and Monitoring Plan (HMMP) shall be prepared that outlines the compensatory mitigation in coordination with the RWQCB and CDFW. 1. If onsite mitigation is proposed, the HMMP shall identify those portions of the site, such as relocated drainage routes, that contain suitable characteristics (e.g., hydrology) for restoration. Determination of mitigation adequacy shall be based on comparison of the restored habitat with similar, undisturbed habitat in the site vicinity (such as upstream or downstream of the site). 2. The HMMP shall include remedial measures in the event that performance criteria are not met.	

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Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		3. If mitigation is implemented off-site, mitigation lands shall be comprised of similar or higher quality and preferably located in Kern County. Offsite land shall be preserved through a deed restriction or conservation easement and the HMMP shall identify an approach for funding assurance for the long-term management of the conserved land. Alternatively, the applicant may purchase credits from an approved mitigation bank. 4. Copies of any coordination, permits, etc., with RWQCB and CDFW shall be provided to the County. **MM 4.4-24:** Prior to issuance of building permits, that applicant shall provide shall demonstrate to the satisfaction of the Kern County Planning and Natural Resource Department Director, that the project applicant/operator shall install power lines in conformance with Avian Power Line Interaction Committee (APLIC) standards for electrocution-reducing techniques as outlined in Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006), and for collision-reducing techniques as outlined in Reducing Avian Collisions with Power Lines: The State of the Art in 2012 (APLIC 2012), or any superseding document issued by APLIC. **MM 4.4-25:** Prior to initiating ground disturbance during the construction and decommissioning phases of the project, a preconstruction survey shall be conducted by a qualified biologist, in areas of suitable habitat for Buena Vista Lake ornate shrew, and the suitable habitat shall be avoided if feasible. If avoidance is not feasible, a qualified biologist shall identify suitable habitat for Buena Vista Lake ornate shrew within the project site and prepare a survey plan for review and approval by the USFWS. If Buena Vista Lake ornate shrew is detected, the project proponent shall coordinate with the USFWS to determine whether take can be avoided or take authorization under the ESA is needed. If take is authorized, then the project proponent shall comply with all provisions of said authorization, and provide compensatory mitigation for impacted natural habitat as determined by USFWS.	
Impact 4.4-2: Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Potentially significant	Implement Mitigation Measures MM 4.4-5, MM 4.4-6, MM 4.4-18, MM 4.4-19 and MM 4.4-21, as described above.	Less than significant
Impact 4.4-3: Would the Project have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	Potentially significant	Implement Mitigation Measures MM 4.4-1, MM 4.4-2, MM 4.4-22 and MM 4.4-23, as described above.	Less than significant
Impact 4.4-4: Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Potentially significant	Implement Mitigation Measures MM 4.4-17 and MM 4.4-20, as described above.	Less than significant
Impact 4.4-5: Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Potentially significant	Implement Mitigation Measures 4.4-1 through 4.4-25, as described above.	Less than significant
Impact 4.4-6: Would the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or State Habitat Conservation Plan?	No Impact	No mitigation measures would be required	No impact

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Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.4: Cumulative Impacts	Potentially significant	Implementation Mitigation Measures MM 4.4-1 through MM 4.4-25, and MM 4.1-4 and MM 4.1-5 (see Section 4.1, *Aesthetics and Visual Resources*)	Significant and unavoidable
4.5 Cultural Resources			
Impact 4.5-1: Would the Project cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?	Potentially significant	**MM 4.5-1:** The project proponent/operator shall retain a Lead Archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (U.S. Department of the Interior, 2011) to carry out all mitigation measures related to archaeological and historical resources during ground disturbing activities. The contact information for this Lead Archaeologist shall be provided to the Kern County Planning and Natural Resources Department prior to the commencement of any construction activities on-site. Further, the Lead Archaeologist shall be responsible for ensuring the following employee training provisions are implemented during implementation of the project: a. Prior to commencement of any ground-disturbing activities, the Lead Archaeologist, in consultation with the Native American Monitor(s), shall prepare Cultural Resources Sensitivity Training materials, including a Cultural Resources Sensitivity Training Guide, to be used in an orientation program given to all personnel working on the project. The training guide may be presented in video form. A copy of the proposed training materials, including the Cultural Resources Sensitivity Training Guide, shall be provided to the Planning and Natural Resources Department prior to the issuance of any grading or building permit. b. The project proponent/operator shall ensure all new employees or on-site workers who have not participated in earlier Cultural Resources Sensitivity Trainings shall meet provisions specified above. c. The training shall include an overview of potential cultural resources that could be encountered during ground disturbance activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the Lead Archaeologist for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of archaeological resources. d. A copy of the Cultural Resources Sensitivity Training Guide/Materials shall be kept on-site and available for all personnel to review and be familiar with as necessary. It is the responsibility of the Lead Archaeologist to ensure all employees receive appropriate training before commencing work on-site. **MM 4.5-2:** Prior to the issuance of any grading or building permit, the project proponent shall submit to the Kern County Planning and Natural Resources Department a Cultural Resources Treatment Plan. The plan shall: a. Require that prior to conducting initial ground disturbance in the vicinity of prehistoric archaeological sites, and in coordination with the Lead Archaeologist and Native American Monitor(s), exclusion areas (i.e., the recorded boundaries of the archaeological sites and all areas within 50 feet thereof) shall be temporarily marked with exclusion markers or protective fencing as determined by the Lead Archaeologist in consultation with the Native American Monitor. b. Require that the construction zone shall be narrowed or otherwise altered to avoid any exclusion areas. c. Provide an overview of best management practices to be utilized during ground-disturbing construction activities to ensure protection of cultural resources. d. Outline the process for evaluation of any unanticipated cultural discoveries during project construction activities. e. Provide a Data Recovery Plan, if required, prepared by the Lead Archeologist in consultation with the Native American Monitor(s), for the recovery of known and unanticipated cultural discoveries that cannot be avoided or preserved in place. **MM 4.5-3:** During implementation of the project, in the event that archaeological materials are encountered during the course of grading or construction, the project contractor shall cease any ground disturbing activities within 50 feet of the find. The area of the discovery shall be marked off by exclusion markers or temporary fencing that encloses a 50-foot radius from the location of the discovery. Signs shall be posted that establish it as an Environmentally Sensitive Area, and all entrance into the area shall be avoided until the discovery is assessed by the Lead Archaeologist and Native American Monitor. The Lead Archaeologist, in consultation with any Native American Monitor, shall evaluate the significance of the resources and recommend appropriate treatment measures. If further treatment of the discovery is necessary, the Environmentally Sensitive Area shall remain in place until all work is completed. Per California Environmental Quality Act (CEQA) Guidelines Section 15126.4(b)(3), project redesign and preservation in place shall be the preferred means to avoid impacts to significant historical resources. Consistent with CEQA Guidelines Section 15126.4(b)(3)(C), if it is demonstrated that resources cannot be avoided, the Lead Archaeologist, in consultation with any Native American Monitor, shall develop additional treatment measures in consultation with the County of Kern (County), which may include data recovery or other appropriate measures. The County shall consult with appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. Diagnostic archaeological materials with research potential recovered during any investigation shall be curated at an accredited curation facility. The Lead Archaeologist, in consultation with a designated Native American Monitor, shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department and to the Southern San Joaquin Valley Information Center at California State University, Bakersfield. **MM 4.5-4**: During implementation of the project, the services of both an Archaeological and Native American Monitor, working under the supervision of the Lead Archaeologist as identified through consultation with appropriate Native American tribes, shall be retained by the project proponent/operator to monitor, on a full-time basis, during ground-disturbing activities associated with project-related construction activities, as follows:	Less than significant

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Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		a. All ground-disturbing activities within 50 feet of prehistoric archaeological sites, within the Buttonbush Solar and Storage Site shall be monitored by Native American Monitor(s) and Archaeological Monitor(s). b. During implementation of the project, Archaeological and Native American monitoring shall be conducted for all initial excavation or ground-disturbing activities. If no archaeological discoveries are made during the course of this monitoring, no additional monitoring will be required. If the Lead Archaeologist can demonstrate that the level of monitoring should be reduced or discontinued, or a need for continuing monitoring, the Lead Archaeologist, in consultation with the Kern County Planning and Natural Resources Department, may adjust the level of monitoring to circumstances as warranted. c. All ground-disturbing activities within 100 feet of a grave site, shall be Monitored by Native American Tribal Monitors and Archaeological Monitors. d. The Lead Archaeologist and Native American Monitor(s) shall be provided all project documentation related to cultural resources within the project site prior to commencement of ground disturbance activities. Should the services of any additional individuals be retained (as the Lead Archaeologist, Archaeological Monitor, or Native American Monitor) subsequent to commencement of ground disturbing activities, such individuals shall be provided all proposed project documentation related to cultural resources within the project area, prior to beginning work. Documentation shall include but not be limited to previous cultural studies, surveys, maps, drawings, etc. Any modifications or updates to project documentation, including construction plans and schedules, shall immediately be provided to the Lead Archaeologist, Archaeological Monitor, and Native American Monitor. e. The Archaeological Monitor(s) shall keep daily logs and the Lead Archaeologist shall submit monthly written updates to the Kern County Planning and Natural Resources Department and Native American Monitor. After monitoring has been completed, the Lead Archaeologist shall prepare a monitoring report that details monitoring results; assessment of inadvertent discoveries; communication with Tribal representatives; installation of, maintenance of, and guidance for environmentally sensitive areas; and general implementation of the required mitigation. The final monitoring report shall act as a record of compliance with guiding documents and mitigation, and shall be submitted to the Kern County Planning and Natural Resources Department and the Southern San Joaquin Valley Information Center at California State University, Bakersfield. **MM 4.5-5:** Prior to the initiation of ground-disturbing activities, the project proponent shall retain a qualified archaeologist to perform a Phase-1 cultural resources assessment of the following parcels: APN 088-220-20, APN 088-220-21, APN 088-220-22, APN 088-220-23, APN 103-030-45, APN 088-180-02, APN 088-180-06, APN 088-180-07, APN 088-210-01, APN 088-220-15, and APN 088-220-16. A report of the study shall be submitted to the Kern County Planning and Natural Resources Department for review. The project proponent shall implement all recommended avoidance, protection, or treatment measures identified in the report. Based on the results, further cultural resources analysis (Phase-2) may be required.	
Impact 4.5-2: Would the Project cause a substantial adverse change in the significance of an archeological resource as defined in CEQA Guidelines Section 15064.5?	Potentially significant	Implementation of Mitigation Measures MM 4.5-1 through MM 4.5-5, would be required.	Less than significant
Impact 4.5-3: Would the Project disturb any human remains, including those interred outside of formal cemeteries?	Potentially significant	**MM 4.5-6:** If human remains are uncovered during project construction, the project contractor shall immediately halt work within 100 feet of the find, contact the Kern County Coroner to evaluate the remains, and follow the procedures and protocols set forth in of the California Environmental Quality Act *Guidelines* Section 15064.5(e). If the County Coroner determines that the remains are Native American, the coroner shall contact the Native American Heritage Commission, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code (PRC) Section 5097.98 (as amended by Assembly Bill 2641). The Native American Heritage Commission shall designate a Most Likely Descendent for the remains per PRC Section 5097.98. Per PRC Section 5097.98, and in accordance with generally accepted cultural or archeological standards or practices, the landowner shall ensure that the immediate vicinity of the Native American human remains is not damaged or disturbed by further development activity until the landowner has conferred with the most likely descendent regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. If the remains are determined to be neither of forensic value to the Coroner, nor of Native American origin, provisions of the California Health and Safety Code (Section 7100 et. seq.) directing identification of the next-of-kin will apply.	Less than significant
Impact 4.5: Cumulative Impacts	Potentially significant	Implement Mitigation Measures MM 4.5-1 though MM 4.5-6, as described above.	Less than significant

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.6 Energy			
Impact 4.6-1: Would the Project result in wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	Less than significant	No mitigation would be required.	Less than significant
Impact 4.6-2: Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Less than significant	No mitigation would be required.	Less than significant.
Impact 4.6: Cumulative Impacts	Less than significant	No mitigation would be required.	Less than significant
4.7 Geology and Soils			
Impact 4.7-1: Would the Project directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving the rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the state geologist for the area or based on other substantial evidence of a known fault?	Less than significant	No mitigation would be required.	Less than significant
Impact 4.7-2: Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?	Potentially significant	**MM 4.7-1:** Prior to the issuance of building or grading permits for the project, the project proponent shall conduct a final engineering design specific geotechnical study in accordance with all applicable ordinances of the Kern County Building Code (Chapter 17.08) and the CBC to evaluate soil conditions and geologic hazards on the project site and submit it to the Kern County Public Works Department for review and approval. a. The final geotechnical study must be signed by a California-registered and licensed professional geotechnical engineer or engineering geologist and must include, but not be limited to, the following: 1. Location of fault traces and potential for surface rupture and ground shaking potential; 2. Maximum considered earthquake and associated ground acceleration for design; 3. Potential for seismically induced liquefaction, landslides, differential settlement, and unstable soils; 4. Stability of any existing or proposed cut-and-fill slopes; 5. Collapsible or expansive soils; 6. Foundation material type; 7. Potential for wind erosion, water erosion, sedimentation, and flooding; 8. Location and description of unprotected drainage that could be impacted by the proposed development; and 9. Recommendations for placement and design of facilities, foundations, and remediation of unstable ground. b. The project proponent shall determine the final siting of project facilities based on the results of the geotechnical study and implement recommended measures to minimize geologic hazards. The project proponent shall not locate project facilities on or immediately adjacent to an active fault trace. All structures shall be offset at least 100 feet from any mapped fault trace. Alternatively, a detailed fault trenching investigation may be performed to accurately locate the fault trace(s) to avoid siting improvements on or close to these fault structures and to evaluate the risk of fault rupture. After locating the fault, accurate setback distances can be proposed. c. The final geotechnical report shall be submitted for review and approval by the Kern County Public Works Department. The Kern County Public Works Department shall evaluate any final facility siting design developed prior to the issuance of any building or grading permits to verify that geological constraints have been avoided. Final design requirements shall also be provided to the on-site construction supervisor and the Kern County Building Inspector to ensure compliance. A copy of the approved design shall be submitted to the Kern County Planning and Natural Resources Department.	Less than significant

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.7-3: Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?	Potentially significant	Implement Mitigation Measure MM 4.7-1, as described above.	Less than significant
Impact 4.7-4: Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?	Less than significant	No mitigation would be required.	Less than significant
Impact 4.7-5: Would the Project result in substantial soil erosion or the loss of topsoil?	Potentially significant	Implement Mitigation Measure MM 4.7-1, as described above, and Mitigation Measure MM 4.10-1 (See Section 4.10, *Hydrology and Water Quality* of this Draft EIR.	Less than significant
Impact 4.7-6: Would the Project be located on a geologic unit or soil that is unstable, or become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	Less than significant	Although not required, implementation of Mitigation Measure MM 4.7-1, as described above, would further reduce potential impacts.	Less than significant
Impact 4.7-7: Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	Potentially significant	Implement Mitigation Measure MM 4.7-1, as described above.	Less than significant
Impact 4.7-8: Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	Potentially significant	**MM 4.7-2:** Prior to issuance of any building permit for the operation and maintenance facilities, the project operator shall obtain all required permits and approvals from Kern County Environmental Health Services Division and shall implement all required conditions regarding the design and siting of the septic systems.	Less than significant
Impact 4.7-9: Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, as defined in CEQA guidelines Section 15064?	Potentially significant	**MM 4.7-3:** The project proponent shall retain a qualified paleontologist, defined as a paleontologist meeting the Society for Vertebrate Paleontology's Professional Standards to carry out all mitigation measures related to paleontological resources. The qualified paleontologist and lead archeologist may be the same individual. a. Prior to the start of any ground disturbing activities, the qualified paleontologist shall prepare a Paleontological Resources Worker Environmental Awareness Program (WEAP) program for all construction personnel working on the project. A Paleontological Resources WEAP Guide approved by the qualified paleontologist shall be provided to all personnel. A copy of the Paleontological Resources WEAP Guide shall be submitted to the Kern County Planning and Natural Resources Department. The training guide may be presented in video form. b. The Paleontological Resources WEAP may be conducted in conjunction with other awareness training requirements. c. The training shall include an overview of potential paleontological resources that could be encountered during ground disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the qualified paleontologist for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of paleontological resources. d. The Paleontological Resources WEAP Guides shall be kept on-site and available for all personnel to review and be familiar with as necessary. **MM 4.7-4:** During construction, the qualified paleontologist or designated monitor shall monitor all ground disturbing activities (with the exception of vibratory or hydraulic installation of tracking or mounting structures and foundations or supports) that occurs at a depth of 15 feet or deeper below ground surface. The qualified paleontologist shall have authority to temporarily divert excavation operations away from exposed fossils to collect associated data and recover the fossil specimens if deemed necessary.	Less than significant

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		Following completion of monitoring, the paleontologist shall prepare a report documenting the absence or discovery of fossil resources on-site. If fossils are found, the report shall summarize the results of the inspection program, identify those fossils encountered, discuss recovery and curation efforts, and provide the methods used in these efforts, as well as describe the fossils collected and their significance. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department and to an appropriate repository, such as the Natural History Museum of Los Angeles County. **MM 4.7-5:** If a paleontological resource is found, the project contractor shall cease ground disturbing activities within 50 feet of the find. The qualified paleontologist shall evaluate the significance of the resources and recommend appropriate treatment measures. At each fossil locality, field data forms shall be used to record pertinent geologic data, stratigraphic sections shall be measured, and appropriate sediment samples shall be collected and submitted for analysis. Any fossils encountered and recovered shall be catalogued and donated to a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County. Accompanying notes, maps, and photographs shall also be filed at the repository.	
Impact 4.7: Cumulative Impacts	Potentially significant	Implement Mitigation Measures MM 4.7-1 through 4.7-5 and MM 4.10-1, as described and in Section 4.10, *Hydrology and Water Quality*, of this Draft EIR.	Less than significant
4.8 Greenhouse Gas Emissions			
Impact 4.8-1: Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Less than significant	No mitigation would be required.	Less than significant
Impact 4.8-2: Would the Project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gas?	Less than significant	No mitigation would be required.	Less than significant
Impact 4.8: Cumulative Impacts	Less than significant	No mitigation would be required.	Less than significant
4.9 Hazards and Hazardous Materials			
Impact 4.9-1: Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Potentially significant	**MM 4.9-1:** During the life of the project, including decommissioning, the project proponent shall prepare and maintain a Hazardous Materials Business Plan (HMBP), as applicable, pursuant to Article 1 and Article 2 of California Health and Safety Code 6.95 and in accordance with Kern County Ordinance Code 8.04.030, by submitting all the required information to the California Environmental Reporting System (CERS) at http://cers.calepa.ca.gov/ for review and acceptance by the Kern County Environmental Health Services Division/Hazardous Materials Section. The HMBP shall: a. Delineate hazardous material and hazardous waste storage areas b. Describe proper handling, storage, transport, and disposal techniques c. Describe methods to be used to avoid spills and minimize impacts in the event of a spill d. Describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction and operation e. Establish public and agency notification procedures for spills and other emergencies including fires f. Describe federal, state, or local agency coordination, as applicable, and clean-up efforts that would occur in the event of an accidental release. g. Include procedures to avoid or minimize dust from existing residual pesticides and herbicides that may be present on the site The project proponent shall ensure that all contractors working on the project are familiar with the facility's HMBP as well as ensure that one copy is available at the project site at all times. In addition, a copy of the accepted HMBP from CERS shall be submitted to the Kern County Planning and Natural Resources prior to issuance of a building permit.	Less than significant
Impact 4.9-2: Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Potentially significant	Implement Mitigation Measures MM 4.9-1 as described above, and the following. **MM 4.9-2:** The project proponent/operator shall continuously comply with the following: a. The construction contractor or project personnel shall use herbicides that are approved for use in California, and are appropriate for application adjacent to natural vegetation areas (i.e., non-agricultural use). Personnel applying herbicides shall have all appropriate state and local herbicide applicator licenses and comply with all state and local regulations regarding herbicide use. b. Herbicides shall be mixed and applied in conformance with the manufacturer's directions.	Less than significant

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		c. 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. d. Products identified as non-toxic to birds and small mammals shall be used if nests or dens are observed; and herbicides shall not be applied if it is raining at the site, rain is imminent, or the target area has puddles or standing water. e. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is observed to be drifting to a nontarget location, spraying shall be discontinued until conditions causing the drift have abated. f. A written record of all herbicide applications on the site, including dates and amounts, shall be furnished annually to the Kern County Planning and Natural Resources Department. **MM 4.9-3:** Prior to initiating ground-disturbing activities, the project proponent shall provide to the Director of Planning and Natural Resources documentation demonstrating that coordination with California Department of Conservation, Geologic Energy Management Division (CalGEM) has been successfully completed regarding the avoidance and/or remediation of abandoned oil wells within the solar field area. The documentation shall state that proposed construction above or near plugged or abandoned oil and gas wells has been avoided, and/or that remediation of wells (as applicable) meets current CalGEM standards.	
Impact 4.9-3: Would the Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	No Impact	No mitigation would be required.	No Impact
Impact 4.9-4: Would the Project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?	Less than significant	No mitigation would be required.	Less than significant
Impact 4.9-5: For a Project located within the adopted Kern County Airport Land Use Compatibility Plan, would the Project result in a safety hazard or excessive noise for people residing or working in the Project site?	No impact	No mitigation would be required.	No impact
Impact 4.9-6: Would the Project impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?	Less than significant	No mitigation would be required.	Less than significant
Impact 4.9-7: Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	Potentially significant	Implementation Mitigation Measure MM 4.14-1 (See Section 4.14, *Public Services*).	Less than significant
Impact 4.9-8: Would implementation of the Project generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste? Specifically, would the Project exceed the following qualitative threshold? Would the presence of domestic flies,	Less than significant	No mitigation would be required.	Less than significant

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
mosquitoes, cockroaches, rodents, and/or any other vectors associated with the Project be significant when the applicable enforcement agency determines that any of the vectors: i. Occur as immature stages and adults in numbers considerably in excess of those found in the surrounding environment; and ii. Be associated with design, layout, and management of project operations; and iii. Disseminate widely from the property; and iv. Cause detrimental effects on the public health or well-being of the majority of the surrounding population?			
Impact 4.9: Cumulative Impacts	Potentially significant	Implement Mitigation Measures MM 4.9-1 through MM 4.9-3 and Mitigation Measure MM 4.14-1 (see Section 4.14-1, *Public Services* for details), .	Less than significant
4.10 Hydrology and Water Quality			
Impact 4.10-1: Would the Project violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality?	Potentially significant	Implement Mitigation Measure MM 4.9-1 (See Section 4.9, *Hazards and Hazardous Materials*, for full mitigation measure text). **MM 4.10-1:** Prior to issuance of a grading permit, the project proponent/operator shall submit a SWPPP for review and approval by the Kern County Planning and Natural Resources Department and/or Kern County Public Works Department. The SWPPP shall be designed to minimize runoff and shall specify best management practices to prevent all construction pollutants from contacting stormwater, with the intent of keeping sediment or any other pollutants from moving off-site and into receiving waters. The requirements of the SWPPP shall be incorporated into design specifications and construction contracts. Recommended best management practices to be incorporated in the SWPPP may include the following: a. Minimization of vegetation removal; b. Implementing sediment controls, including silt fences as necessary; c. Installation of a stabilized construction entrance/exit and stabilization of disturbed areas; d. Properly containing and disposing of hazardous materials used for construction on-site; e. Properly covering stockpiled soils to prevent wind erosion; f. Proper protections and containment for fueling and maintenance of equipment and vehicles; g. Appropriate disposal of demolition debris, concrete and soil, and aggressively controlling litter; h. Cleanup of silt and mud on adjacent street due to construction activity; i. Checking all lined and unlined ditches after each rainfall; j. Restore all erosion control devices to working order to the satisfaction of the Kern County Planning and Natural Resources Department and/or Kern County Public Works Department after each rainfall runoff; and k. Install additional erosion control measures as may be required due to uncompleted grading operations or unforeseen circumstances which may arise. **MM 4.10-2:** Prior to the issuance of a grading permit, the project proponent/operator shall complete a hydrologic study and final drainage plan designed to evaluate and minimize potential increases in runoff from the project site. The study shall include, but is not limited to the following: a. A numerical stormwater model for the project site that evaluates existing and proposed (with project) drainage conditions during storm events ranging up to the 100-year event. b. The study shall also consider potential for erosion and sedimentation in light of modeled changes in stormwater flow across the project area that would result from project implementation.	Less than significant

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		c. Engineering recommendations to be incorporated into the project design and applied within the site boundary. Engineering recommendations will include measures to offset increases in stormwater runoff that would result from the project, as well as implementation of design measures to minimize or manage flow concentration and changes in flow depth or velocity so as to minimize erosion, sedimentation, and flooding on-site or off-site. d. A specification that the final design of the solar arrays shall include one foot of freeboard clearance above the calculated maximum flood depths for the solar arrays or the finished floor of permanent structures. Solar panel sites located within a 100-year floodplain shall be graded to direct potential flood waters without increasing the water surface elevations more than one foot or as required by Kern County's Floodplain Management Ordinance. e. The hydrologic study and drainage plan shall be prepared in accordance with the Kern County Grading Code and Kern County Development Standards and approved by the Kern County Public Works Department prior to the issuance of grading permits. **MM 4.10-3:** Prior to the issuance of any building or grading permit within the boundaries of Site 6 (CUP #17, Map 78), the Project proponent shall provide documentation to the Planning and Natural Resources Department that: a. All animal waste land application activities associated with the existing Tjaarda Dairy, within the project site boundaries, have been removed from the lagoons, ponds, corrals, and other areas of the dairy through one of the following three options, at least three months prior to the start of construction within the footprint of the existing Tjaarda dairy located on APN 088-220-16: 1. The animal waste was applied to approved land application areas outside of the project site and consistent with the dairy's Nutrient Management Plan approved by Regional Water Quality Control Board (RWQCB). 2. The animal waste was transported to a permitted disposal or composting facility. 3. The animal waste will be composted on APN 088-220-16 and sold or transferred to other farms within Kern County, as legally permissible. b. The project proponent shall further provide appropriate documentation, such as a final facility closure plan, confirming the final closure of the project site for use as dairy operations by the RWQCB or other relevant agencies who have dairy oversight responsibilities and that no new animal waste land use applications have occurred on-site within the past three (3) months.	
Impact 4.10-2: Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the Basin?	Potentially significant	Implement Mitigation Measure MM 4.10-2, as described above.	Less than significant
Impact 4.10-3: Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner that would result in substantial erosion or sedimentation on- or off-site?	Potentially significant	Implement Mitigation Measures MM 4.10-1 and MM 4.10-2 as described above.	Less than significant
Impact 4.10-4: Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner that would substantially increase the rate of amount of surface runoff in a manner that would result in flooding on- or off-site?	Potentially significant	Implement Mitigation Measures MM 4.10-1 and MM 4.10-2 as described above.	Less than significant
Impact 4.10-5: Would the Project create or contribute runoff water that would exceed the capacity of existing or planned	Potentially significant	Implement Mitigation Measures MM 4.10-1 through MM 4.10-3, as described above.	Less than significant

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
stormwater drainage systems or provide substantial additional sources of polluted runoff?			
Impact 4.10-6: Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner that would impede or redirect flood flows?	Potentially significant	Implement Mitigation Measures MM 4.10-1 and MM 4.10-2, as described above.	Less than significant
Impact 4.10-7: Would the Project result in risk release of pollutants due to project inundation and location in a flood hazard, tsunami, or seiche zone?	Potentially significant	Implement Mitigation Measures MM 4.9-1 (see Section 4.9, *Hazards and Hazardous Materials*, for full mitigation measure text) and MM 4.10-2, as described above.	Less than significant
Impact 4.10-8: Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	No impact	No mitigation would be required.	No impact
Impact 4.10: Cumulative Impacts	Potentially significant	Implement Mitigation Measures MM 4.9-1 (See Section 4.9, *Hazards and Hazardous Materials* for full mitigation measure text.) and Mitigation Measures MM 4.10-1 and MM 4.10-2, as described above.	Less than significant
4.11 Land Use and Planning			
Impact 4.11-1: Would the Project physically divide an established community?	No impact	No mitigation would be required.	No impact
Impact 4.11-2: Would the Project conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Potentially significant	Implementation of the mitigation measures to which the policy consistency analysis refers in Section 4.11, *Land Use and Planning*, and are provided in this table and elsewhere in the Draft EIR, would be required.	Less than significant

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.11: Cumulative Impacts	Potentially significant	**MM 4.11-1:** Prior to issuance of any building permit, the project operator shall provide a Decommission Plan for review and approval by the Kern County Public Works Department or a County-contracted consulting firm at a cost to be borne by the project operator. The Decommission Plan shall factor in the cost to remove the solar panels and support structures, replacement of any disturbed soil from removal of support structures, and control of fugitive dust on the remaining undeveloped land. Salvage value for the solar panels and support structures shall be included in the financial assurance calculations. The assumption, when preparing the estimate, is that the project operator is incapable of performing the work or has abandoned the solar facility, thereby requiring Kern County to hire an independent contractor to perform the decommissioning work. In addition to submitting a Decommission Plan, the project operator shall post or establish and maintain financial assurances with Kern County related to the decommissioning of the site as identified on the approved Decommission Plan in the event that at any point in time the project operator determines it is not in the company's best interest to operate the facility. The financial assurance required prior to issuance of any building permit shall be established using one of the following: a. An irrevocable letter of credit; b. A surety bond; c. A trust fund in accordance with the approved financial assurances to guarantee the decommissioning work will be completed in accordance with the approved decommission plan; or d. Other financial assurances as reviewed and approved by the respective County administrative offices, in consultation with the Kern County Planning and Natural Resources Department. The financial institution or Surety Company shall give the County at least 180 days' notice of intent to terminate the letter of credit or bond. Financial assurances shall be reviewed annually by the Kern County Public Works Department or County-contracted consulting firm(s) at a cost to be borne by the project operator to substantiate those adequate funds exist to ensure decommissioning of all solar panels and support structures identified on the approved Decommission Plan. Should the project operator decommission the site on their own, the County will not pursue forfeiture of the financial assurance. Once decommissioning has occurred, financial assurance for that portion of the site will no longer be required and any financial assurance posted shall be adjusted or returned accordingly. Any funds not utilized through decommissioning of the site by the County shall be returned to the project operator. Should any portion of the solar field not be in operational condition for a consecutive period of twelve (12) months that portion of the site shall be deemed abandoned and shall be removed within sixty (60) days from the date a written notice is sent to the property owner and solar field owner, as well as the project operator, by the County. Within this sixty (60) day period, the property owner, solar field owner, or project operator may provide the director of the Kern County Planning and Natural Resources Department a written request and justification for an extension for an additional twelve (12) months. The Kern County Planning and Natural Resources Director shall consider any such request at a Director's Hearing as provided for in Section 19.102.070 of the Kern County Zoning Ordinance. In no case shall a solar field that has been deemed abandoned be permitted to remain in place for more than forty-eight (48) months from the date the solar facility was first deemed abandoned.	Less than significant
4.12 Mineral Resources			
Impact 4.12-1: Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and residents of the State?	Potentially significant	**MM 4.12-1:** Prior to issuance of any grading or building permit, excluding the generation tie line, the project proponent shall provide the following documentation regarding the mineral rights holders who also have right of surface access and drilling areas: a. Written authorization, in a separate document outside any agreement, from the mineral right holder that they agree to development activities on the specific parcel containing their respective mineral rights. The letter shall include the specific Assessor's Parcel Number of the property and name of the mineral rights holders, and any agreements for size and location of drilling areas. b. The site plan showing the unbuildable drilling areas provided for the mineral holders with clear notation that no use of the area can be made for the life of the project except for exploration and extraction of oil and gas with permits without purchase and ownership of full mineral rights. No construction storage or laydown area may be established at any time in the drilling areas unless permitted through an individual agreement. All drilling areas located inside the project fence shall be enclosed within a separate fence and provided legal access across the site, and a 40-foot-long gate provided or as detailed by the individual agreement or; c. For all mineral rights holders that do not have an individual agreement and have right of surface access, a drilling area sufficient to provide access to their minerals shall be shown on the final site plan and acknowledged in all grading plans. d. If the project proponent is unable to locate existing mineral rights holders, the Planning & Natural Resources Department Director may allow implementation of the project to move forward without the required mineral rights holder authorization provided sufficient documentation has been submitted that outlines the efforts undertaken to locate all mineral rights holders. The authorization by the Planning Director shall be made in writing.	Less than significant

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.12-2: Would the Project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	Potentially significant	Implement Mitigation Measure MM 4.12-1, as described above.	Less than significant
Impact 4.12-3: Cumulative Impacts	Potentially significant	Implement Mitigation Measure MM 4.12-1.	Significant and unavoidable
4.13 Noise			
Impact 4.13-1: Would the Project result in generation of a substantial temporary or permanent increase in the ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Potentially significant	**MM 4.13-1:** To reduce temporary construction-related noise impacts, the following shall be implemented by the project proponent/operator: a. Equipment staging shall be located in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site during construction to the extent practical. The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site, where feasible. b. Construction equipment shall be fitted with noise-reduction features such as mufflers and engine shrouds that are no less effective than those originally installed by the manufacturer. c. During all construction or decommissioning phases of the project, the construction contractor shall limit all on-site noise- producing activities to the hours of 6:00 a.m. to 9:00 p.m. Monday through Friday, and to the hours of 8:00 a.m. and 9:00 p.m. on Saturday and Sunday or as through the Kern County Noise Ordinance (Kern County Code of Ordinances, Title 8, Chapter 8.36.020). d. If construction-ground-disturbing activities must occur outside of permitted hours per Section 8.36.020 of the Kern County Code, the project proponent/operator shall obtain approval from the development services agency director or designated representative for project construction activities occurring between the hours of 9:00 p.m. to 6:00 a.m. on weekdays and 9:00 p.m. to 8:00 a.m. on weekends, within 1,000 feet of an occupied residential building, if audible to a person with average hearing ability at a distance of 150 feet from a construction site. As a condition of approval for exempting construction activity outside of permitted hours, the project proponent/operator shall implement a qualified, noise consultant-prepared noise control plan including appropriate noise-reduction measures to the satisfaction of the development services agency director or designated representative, which may include the measures listed above. In addition, the noise control plan may include a requirement to restrict the duration of noise-generating construction activities outside of permitted hours within 1,000 feet of an occupied residential building. e. Haul trucks shall not be allowed to idle for periods greater than five minutes, except as needed to perform a specified function (e.g., concrete mixing). f. f. On-site vehicle speeds shall be limited to 15 miles per hour, or less (except in cases of emergency). g. Back-up beepers for all construction equipment and vehicles shall be broadband sound alarms or adjusted to the lowest noise levels possible, provided that the Occupational Safety and Health Administration and California Division of Occupational Safety and Health's safety requirements are not violated. On vehicles where back-up beepers are not available, alternative safety measures such as escorts and spotters shall be employed. **MM 4.13-2:** The contractor shall establish a Noise Disturbance Coordinator for the project during construction. The Noise Disturbance Coordinator shall be responsible for responding to any complaints about construction noise. The Noise Disturbance Coordinator shall determine the cause of the complaint and shall be required to implement reasonable measures to resolve the complaint. Contact information for the Noise Disturbance Coordinator shall be submitted to the Kern County Planning and Natural Resources Department prior to commencement of any ground-disturbing activities. **MM 4.13-3:** Prior to commencement of any on-site construction activities (i.e., fence construction, mobilization of construction equipment, initial grading, etc.), including decommissioning, the project proponent/operator shall provide written notice to the public through mailing a notice, which shall include: a. The mailing notice shall be to all residences within 1,000 feet of the project site, 15 days or less prior to construction activities. The notices shall include the construction schedule and a telephone number and email address where complaints and questions can be registered with the noise disturbance coordinator. b. A minimum of one sign, legible at a distance of 50 feet, shall be posted at the construction site, or adjacent to the nearest public access to the main construction entrance, throughout construction activities that shall provide the construction schedule (updated as needed) and a telephone number where noise complaints can be registered with the noise disturbance coordinator. c. Documentation that the public notice has been sent and the sign has been posted shall be provided to the Kern County Planning and Natural Resources Department.	Less than significant

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		MM 4.13-4: Adequate noise shielding shall be provided to the project's on-site transformers and inverters such that the existing ambient noise level at the nearest off-site residential structure would not be exceeded by more than 5 dBA. The project proponent/operator shall submit photographic evidence of this technology and clearly demonstrate on a site plan where adequate noise shielding will be located, if necessary. No shielding shall be required if the increase in ambient noise level is 5 dBA or less.	
Impact 4.13-2: Would the Project generate excessive ground borne vibration or ground borne noise levels?	Less than significant	No mitigation would be required.	Less than significant
Impact 4.13-3: Would the Project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the Project?	Potentially significant	Implement Mitigation Measure 4.13-4, above.	Less than significant
Impact 4.13-4: For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the Project expose people residing or working in the Project site to excessive noise levels?	No impact	No mitigation would be required.	No impact
Impact 4.13: Cumulative Impacts	Potentially significant	Implement Mitigation Measures MM 4.13-1 through MM 4.13-4.	Less than significant
4.14 Public Services			
Impact 4.14-1: Would the Project result in substantial adverse physical impacts associated with the provisions of new or physically altered governments facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service rations, response times, or to other performance objectives for any of the public services: Fire Protection, Police Protection, Schools, Parks, Other Public Facilities?	Potentially significant	**MM 4.14-1:** Prior to the issuance of grading or building permits the project proponent/operator shall develop and implement a fire safety plan for use during construction, operation and decommissioning. The project proponent/operator shall submit the plan, along with maps of the project site and access roads, to the Kern County Fire Department for review and approval. A copy of the approved Fire Safety Plan shall be submitted to the Kern County Planning and Natural Resources Department. The Fire Safety Plan shall contain notification procedures and emergency fire precautions including, but not limited to, the following: a. All internal combustion engines, both stationary and mobile, shall be equipped with spark arresters. Spark arresters shall be in good working order. b. Light trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. These vehicle types will 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 to prevent them from growing into more serious threats. f. The project proponent/operator shall make an effort to restrict the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to periods outside of 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. g. Building plans shall be included for the energy storage system to verify adherence to County and California Building Code standards. **MM 4.14-2:** The project shall pay all legally required property taxes; or a. If the project qualifies, based on State Legislative action and the State Board of Equalization guidance, for any reduction in property taxes under a Solar Tax Exclusion or other specific property tax relief for solar or battery storage regardless of the name, then the following Cumulative Impact Charge (CIC) shall apply. The first annual payment is to be paid by December 31 of the year the first legislatively provided property tax reduction is assessed, and annually every year for the life of the project, or as a lump sum for multiple years, until the project is decommissioned and the Conditional Use Permit is voided.	Less than significant

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		1. Submittal of Building Permit or Calculation of Amount A. Any building permit or calculation of amount submitted shall be accompanied by a map and legal description of the entire approved Conditional Use Permit area. B. The map shall calculate the CIC net acreage as follows: 1. Total gross acreage of the approved Conditional Use Permit. 2. Total acres of recorded easements. 3. Delineation of any permanent structures or energy storage that is not covered under a property tax reduction and evidence from legislation or State Board of Equalization that they have no reduction in taxes. C. Formula is Net Acreage = B.1 minus B.2 and B.3, if applicable. D. Temporary storage areas or non-permanent commercial coaches or cargo containers for construction or operations are not eligible for inclusion under B.3, above. E. All areas of buildings, accessory improvements and easements used in the calculations shall be shown on the submitted Map. 2. Calculation of Cumulative Impact Charge (CIC) and annual payment A. A payment of $690 per net acre shall be paid annually for all acres in the approved Conditional Use Permit regardless of phased implementation of building permits, the total number of building permits, or type of building permit issued. B. The first annual payment is to be paid by December 31 of the year the first property tax reduction is assessed. If it is not paid by December 31 of that year, then a notice of violation of the Conditional Use Permit shall be filed and the procedure in Chapter 19.114 shall commence immediately under the authority of the Director. C. Annual payments are due every year on the date of the first payment. D. Payments shall be made to the Planning and Natural Resources Department for transfer directly to the County Administrative Office Fiscal Division (CAO) and labeled Cumulative Impact Charge (CIC) with the project name, location and APNs. E. An advance payment option for a lump sum of all payment years, or a reduction in each year's payment for 5 or more years, may be requested by submittal of a written request to the Planning and Natural Resources Department with details of the offer no later than 60 days before the annual payment is due. A 10% discount in the lump sum amount will be applied if the advance payment option is accepted by the County Administrative Office Fiscal Division (CAO) by written response. **MM 4.14.-3:** Written verification of ownership of the proposed project shall be submitted to the Kern County Planning and Natural Resources 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 total less than $3,000 per megawatt per year, then a Supplemental Cumulative Impact Charge (SCIC) shall be paid for the difference annually up to $3,000 per megawatt. The SCIC payments shall be made annually directly to the County Administrative Office (CAO) Fiscal Division and labeled "Supplemental Cumulative Impact Charge (SCIC)" with the project name and phase number. The fee shall be paid to the Kern County Auditor/Controller by April 30 of each calendar year. **MM 4.14-4:** The project proponent/operator shall work with the County to determine how the use of sales and use taxes from construction of the project can be maximized. This process shall include, but is not limited to, the project proponent/operator obtaining a street address within the unincorporated portion of Kern County for acquisition, purchasing and billing purposes, and registering this address with the State Board of Equalization. As an alternative to the aforementioned process, the project proponent/operator may make arrangements with Kern County for a guaranteed single payment that is equivalent to the amount of sales and use taxes that would have otherwise been received (less any sales and use taxes actually paid); with the amount of the single payment to be determined via a formula approved by Kern County. The project proponent/operator shall allow the County to use this sales tax information publicly for reporting purposes. **MM 4.14-5:** Prior to the issuance of any building permits on the property, the project operator shall submit a letter detailing the hiring efforts prior to commencement of construction, which encourages all contractors of the project site to hire at least 50 percent of their workers from local Kern County communities. The project operator shall provide the contractors a list of training programs that provide skilled workers and shall require the contractor to advertise locally for available jobs, notifying the training programs of job availability, all in conjunction with normal hiring practices of the contractor.	
Impact 4.14: Cumulative Impacts	Potentially significant	Implement Mitigation Measures MM 4.14-1 through MM 4.14-5.	Less than significant

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
4.15 Transportation and Traffic			
Impact 4.15-1: Would the Project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	Potentially significant	**MM 4.15-1:** Prior to the issuance of construction or building permits, the project proponent/operator shall implement measures to ensure peak hour construction worker vehicle limits are maintained during the AM and PM peak hours in order to maintain LOS D or better at the study intersections. These measures may include, but are not limited to the following: a. The Construction Traffic Control Plan shall outline the methods used to limit worker vehicle traffic departing from the project site during peak AM and PM hours, methods used to control the number of trips during these hours, and documentation of reasonable coordination efforts with other projects in the area to avoid impacts to study intersections. b. The project proponent/operator shall limit construction worker vehicle trips to and from the site to the extent possible during the AM and PM peak periods (i.e.,7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.). c. If the Kern County Public Works Department indicates that either AM or PM peak hour construction trips may exceed the peak hour construction worker vehicle limits, the project proponent/operator shall implement measures to reduce peak hour passenger vehicle trips at the impacted intersections. These measures could include: 1. Scheduling construction worker shifts so that a majority of the workers arrive and depart the project site outside the AM and PM peak periods. 2. Staggering construction worker shifts so that construction worker vehicle trips are distributed over a broader period (i.e., construction workers arrive in staggered shifts starting from 6:00 a.m. and depart in staggered shifts starting from 2:00 p.m.). 3. Instituting incentives and providing options for construction workers to carpool and/or vanpool to and from the project site. **MM 4.15-2:** Prior to the issuance of construction or building permits for each Facility, the project proponent/operator shall: a. Prepare and submit a Construction Traffic Control Plan to Kern County Public Works Department-Development Review and the California Department of Transportation offices for District 6, as appropriate, for approval. The Construction Traffic Control Plan must be prepared in accordance with both the California Department of Transportation Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook and must include, but not be limited to, the following issues: 1. The routes, duration, and types of traffic control that will be implemented to accommodate construction-related traffic; 2. Timing of deliveries of heavy equipment and building materials. To the extent feasible, restrict deliveries and vendor vehicle arrivals and departures during either the AM and PM peak periods; 3. Directing construction traffic with a flag person; 4. Placing temporary signing, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic; 5. Ensuring access for emergency vehicles to the project site; 6. Temporarily closing travel lanes or delaying traffic during materials delivery, transmission line stringing activities, or any other utility connections; 7. Ensuring required access from property owners is obtained prior to starting construction; 8. Maintaining access to adjacent property; 9. Specifying both construction-related vehicle travel and oversize load haul routes and avoiding residential neighborhoods to the maximum extent feasible; and 10. Consult with the County to develop coordinated plans that would address construction-related vehicle routing and detours adjacent to the construction area for the duration of construction overlap with neighboring projects. Key coordination meetings would be held jointly between applicants and contractors of other projects for which the County determines impacts could overlap. b. Obtain all necessary encroachment permits for the work within the road right-of-way or use of oversized/overweight vehicles that will utilize county maintained roads, which may require California Highway Patrol or a pilot car escort. Copies of the approved traffic plan and issued permits shall be submitted to the Kern County Planning and Natural Resources Department, the Kern County Public Works Department-Development Review, and Caltrans. 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.	Less than significant

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
		d. Submit documentation that identifies the roads to be used during construction. The project proponent/operator shall be responsible for repairing any damage to non-county maintained roads that may result from construction activities. The project proponent/operator shall submit a preconstruction video log and inspection report regarding roadway conditions for roads used during construction to the Kern County Public Work Department-Development Review and the Kern County Planning and Natural Resources Department. Within 30 days of completion of construction, the project proponent/operator shall submit a post-construction video log and inspection report to the County. This information shall be submitted in an electronic format. The County, in consultation with the project proponent/operator's engineer, shall determine the extent of remediation required, if any.	
Impact 4.15-2: Would the Project conflict or be inconsistent with CEQA Guidelines Section 15064.3(b)?	Less than significant	No mitigation would be required.	Less than significant
Impact 4.15-3: Would the Project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	Potentially significant	Implement Mitigation Measure MM 4.15-2.	Less than significant
Impact 4.15-4: Would the Project result in inadequate emergency access?	Potentially significant	Implement Mitigation Measures MM 4.15-1 and MM 4.15-2.	Less than significant
Impact 4.15: Cumulative Impacts	Potentially significant	Implement Mitigation Measures MM 4.15-1 and MM 4.15-2	Less than significant
4.16 Tribal Cultural Resources			
Impact 4.16-1a: Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	Potentially significant	Implement Mitigation Measures MM 4.5-1 through MM 4.5-6 (See Section 4.5, *Cultural Resources*, for full mitigation measure text).	Less than significant
Impact 4.16-1b: Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to	Potentially significant	Implement Mitigation Measures MM 4.5-1 through MM 4.5-6 (See Section 4.5, *Cultural Resources*, for full mitigation measure text).	Less than significant

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?			
Impact 4.16: Cumulative Impacts	Potentially significant	Implement Mitigation Measures MM 4.5-1 through MM 4.5-6 (See Section 4.5, *Cultural Resources*, for full mitigation measure text).	Less than significant
4.17 Utilities and Service Systems			
Impact 4.17-1: Would the Project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	Potentially significant	Implement Mitigation Measures MM 4.10-1 (See Section 4.10, *Hydrology and Water Quality*) **MM 4.17-1:** Prior to the issuance of a building permit for an O&M building that includes facilities the use of which will generate wastewater requiring sanitary disposal (e.g., restrooms), the method of sewage disposal shall be as required and approved by the Kern County Public Health Services Department. Compliance with this requirement will necessitate that the project proponent obtain the necessary approvals for the design of the septic system from the Kern County Engineering, Surveying and Permit Services Department. The septic system disposal field shall be located a minimum of 100 feet from a classified stream, or 25 feet from a non-classified as defined in the Kern County Onsite Systems Manual (Kern County 2016), and shall not be located where it would impact State wetlands or special-status plant species.	Less than significant
Impact 4.17-2: Would the Project have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years?	Less than significant	No mitigation would be required.	Less than significant
Impact 4.17-3: Would the Project result in a determination by the wastewater treatment provider which serves or may serve the Project that it has inadequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?	Potentially significant	Implement Mitigation Measure 4.17-1, above.	Less than significant
Impact 4.17-4: Would the Project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	Potentially significant	**MM 4.17-2:** Prior to issuance of a grading or building permit (whichever occurs first), an on-site Waste Disposal and Recycling Coordinator shall be designated by the project proponent/operator to facilitate waste disposal and recycling as part of the Maintenance, Trash Abatement, and Pest Management Program. The provisions listed below shall apply to the project: a. The project proponent/operator shall provide a storage area for waste and recyclable materials within the fenced project area that is clearly identified for waste and recycling. This area shall be shown on a site plan submitted to the Kern County Planning and Natural Resources Department and maintained on the site during construction, operations, and decommissioning. b. During construction, operation, and decommissioning, debris and waste generated shall be recycled to the maximum extent feasible. c. The Waste Disposal and Recycling Coordinator shall facilitate recycling of all construction and decommissioning waste through coordination with contractors, local waste haulers, and/or other facilities that recycle construction/demolition wastes. d. The Waste Disposal and Recycling Coordinator shall coordinate with Kern County Public Works Department – Solid Waste Division the acceptance for disposal or recycling of construction and decommissioning waste prior to being transported to any public disposal facility. e. The Waste Disposal and Recycling Coordinator shall ensure that materials transported to public disposal facilities for recycling shall be separated by material type so as not to be co-mingled or contaminated with waste material. f. The Waste Disposal and Recycling Coordinator shall also be responsible for ensuring wastes requiring special disposal are handled according to State and County regulations that are in effect at the time of disposal. g. Contact information of the coordinator shall be provided to the Kern County Planning and Natural Resources Department prior to issuance of building permits.	Less than significant

Table 1-7: Draft EIR Impacts, Mitigation Measures, and Level of Impacts After Mitigation

Impact	Level of Significance before Mitigation	Mitigation Measures	Level of Significance after Mitigation
Impact 4.17-5: Would the Project comply with federal, State, and local management and reduction statutes and regulations related to solid waste?	Potentially significant	Implement Mitigation Measure MM 4.17-2, above.	Less than significant
Impact 4.17: Cumulative Impacts	Potentially significant	Implement Mitigation Measures MM 4.10 1 (see Section 4.10, *Hydrology and Water Quality*, for full mitigation measure text, MM 4.17-1, and MM 4.17-2 .	Less than significant
4.18 Wildfire			
Impact 4.18-1: Would the Project substantially impair an adopted emergency response plan or emergency evacuation plan?	Potentially significant	Implement Mitigation Measure MM 4.15-2 (See Section 4.15, *Transportation and Traffic*).	Less than significant
Impact 4.18-2: Would the Project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	Less than significant	Implement Mitigation Measure MM 4.1-4 (See Section 4.1, *Aesthetics*).	Less than significant
Impact 4.18-3: Would the Project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	Potentially significant	Implement Mitigation Measures MM 4.1-4 and MM 4.14-1 (see Section 4.1, *Aesthetics* and Section 4.14, *Public Services*, for full mitigation measure text).	Less than significant
Impact 4.18-4: Would the Project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	Potentially significant	Implement Mitigation Measure MM 4.10-1 (See Section 4.10, *Hydrology and Water Quality*).	Less than significant
Impact 4.18: Cumulative Impacts	Potentially significant	Implement Mitigation Measures MM 4.1-4, MM 4.10-1, and MM 4.14-1 (see Sections 4.1, *Aesthetics*, 4.10, *Hydrology and Water Quality*, and 4.14, *Public Services*, for full mitigation measure text).	Significant and unavoidable

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Chapter 2

Introduction

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Chapter2
Introduction

2.1 Intent of the California Environmental Quality Act

This document is the Draft Environmental Impact Report (EIR) for the Buttonbush Solar and Storage Project (proposed Project) by 29SC 8me LLC's (Project proponent). The Kern County Planning and Natural Resources Department (KCPNR), as Lead Agency, has determined that an EIR must be prepared for the proposed Project given its potential to result in significant environmental impacts. The following provides a brief overview of the intent of the California Environmental Quality Act (CEQA), background information concerning this Draft EIR—including, but not limited to, CEQA procedural and substantive requirements that apply to the Draft EIR—and summarizes comments received to date on the environmental analysis.

The Project site consists of approximately 11,983 acres of privately owned land, on 128 parcels that mostly consist of agricultural uses and open space in the valley region of Kern County (see Chapter 3, *Project Description,* **Figure 3-1:** *Regional Location*). There are several separate sites that constitute the entire Project site, which are all located within unincorporated Kern County, directly north of the community of Buttonwillow, approximately 4 miles west of the City of Bakersfield, 2 miles west of the City of Shafter, and approximately 7 miles southwest of the City of Wasco. The proposed Project straddles and crosses Interstate 5 (I-5) and is east of Buttonwillow Raceway Park, north of State Route (SR) 58, and south of Kimberlina Road. The Project site boundaries, as well as aerial views of the proposed Project's location, are shown in **Figure 3-2:** *Project Site Boundaries*, and **Figure 3-3:** *Project Aerial*, respectively, in Chapter 3, *Project Description*, of this Draft EIR.

The proposed Project consists of the construction and operation of a photovoltaic (PV) solar facility and associated infrastructure with the capacity to generate up to 2 gigawatts (GW) of alternating current power with a 2 GW maximum capacity battery energy storage system capable of storing approximately 16,000 megawatt-hours (MWh) or 16 gigawatt-hours (GWh) of energy. Proposed facilities include solar panels, solar racking, inverters, service roads, a power collection, communication cables, microwave towers, overhead and underground transmission lines, electrical switchyards, Project substations, energy storage system(s), and operations and maintenance facilities. The transfer of power would be supported by an overhead gen-tie and/or underground electrical transmission line(s) originating from one or more existing on-site substations and terminating at the Pacific Gas & Electric Midway Substation.

This Draft EIR has been prepared pursuant to the following:

- CEQA (Public Resources Code, Section 21000 et seq.)
- CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Section 15000 et seq.)
- The Kern County CEQA Implementation Document

The overall purposes of the CEQA process are to:

- Ensure that the environment and public health and safety are protected in the face of discretionary projects initiated by public agencies or private concerns.
- Provide for full disclosure of a project's environmental effects to the public, the agency decision-makers who will approve or deny a project, and responsible and trustee agencies charged with managing resources (e.g., wildlife, air quality) that may be affected a project.
- Provide a forum for public participation in the decision-making process with respect to environmental effects.

2.2 Purpose of this Draft Environmental Impact Report

An EIR is a public informational document used in the planning and decision-making process. This project-level Draft EIR will analyze the environmental impacts of the proposed Project. The Kern County Planning Commission and Board of Supervisors will consider the information in this Draft EIR, including the public comments and staff response to those comments, during the public hearing process. The final decision is made by the Board of Supervisors, who may approve, conditionally approve, or deny the proposed Project. The purpose of an EIR is to identify:

- The potential significant impacts of a project on the environment and indicate the manner in which those significant impacts can be avoided or mitigated;
- Any unavoidable adverse impacts that cannot be mitigated; and
- Reasonable and feasible alternatives to a project that would eliminate any significant adverse environmental impacts or reduce the impacts to a less than significant level.

An EIR also discloses growth-inducing impacts; impacts found not to be significant; and significant cumulative impacts of a project when taken into consideration with other past, present, and reasonably anticipated future projects.

CEQA requires that an EIR reflect the independent judgment of the lead agency regarding the impacts, the level of significance of the impacts both before and after mitigation, and feasible mitigation measures proposed to reduce the impacts. A Draft EIR is circulated to responsible agencies, trustee agencies with resources affected by a project, and interested agencies and individuals. The purposes of public and agency review of a Draft EIR include sharing expertise, disclosing agency analyses, checking for accuracy, detecting omissions, discovering public

concerns, and soliciting mitigation measures and alternatives capable of avoiding or reducing the significant effects of a project, while still attaining most of the basic objectives of a project.

2.2.1 Issues to Be Resolved

Section 15123(b)(3) of the *CEQA Guidelines* requires that an EIR contain issues to be resolved, which include the choices among alternatives and whether or how to mitigate significant impacts. The major issues to be resolved regarding a project include the following decisions by the lead agency:

- Determine whether the EIR adequately describes the environmental impacts of a project.
- Identify a preferred choice among alternatives.
- Determine whether the recommended mitigation measures should be adopted or modified.
- Determine whether additional mitigation measures need to be applied to a project.

Prior to the lead agency's determination, the lead agency must circulate the Draft EIR to responsible agencies that have discretionary approval authority regarding the proposed Project; trustee agencies with regulatory authority regarding specific resources that the proposed Project will affect; and interested agencies and individuals. The purpose of public and agency review of a Draft EIR includes sharing expertise, disclosing agency analyses, checking for accuracy, detecting omissions, discovering public concerns, and soliciting mitigation measures and alternatives capable of avoiding or reducing the significant effects of the proposed Project, while attaining most of the basic objectives of the proposed Project.

This project-level EIR analyzes the environmental impacts of the proposed Project which include Project-specific impacts; direct and indirect impacts (for example, growth-inducing impacts); and cumulative impacts of the proposed Project, or the proposed Project's impacts in combination with the impacts of past, present, and reasonably anticipated future projects (see Section 2.3, *Terminology*, below, for a description of these impacts). Pursuant to its lead agency responsibilities, the Kern County Planning and Natural Resources Department and, ultimately, the Board of Supervisors will consider the information in the EIR, including public comments, public agency comments, and staff responses to those comments, during the public hearing process. The Board of Supervisors will make the final decision regarding the proposed Project, by approving, conditionally approving, or denying the proposed Project.

2.3 Terminology

To assist readers in understanding this EIR, terms used are defined in the following manner:

- ***Project*** or ***proposed Project*** means the whole of an action that has the potential for resulting in a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.

- ***Environment*** means the physical conditions that exist within the area which the proposed Project will affect, including, but not limited to, land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The area involved is the locale in which significant direct or indirect impacts would occur as a result of the proposed Project. The environment includes both natural and human-created conditions.
- ***Impacts*** analyzed under CEQA must be related to a physical change. Impacts are:
    - Direct or primary - Impacts that the proposed Project will cause and would occur at the same time and place of project implementation; or
    - Indirect or secondary - Impacts that the proposed Project will cause at a later time or farther removed in distance but are still reasonably foreseeable. Indirect or secondary impacts may include growth-inducing impacts and other effects related to induced changes in the pattern of land use, population density or growth rate, or related effects on air, water, and other aspects of the physical environment, including ecosystems.
- ***Significant impact on the environment*** means a substantial, or potentially substantial, adverse change in any of the physical conditions in the proposed Project vicinity which the proposed Project will affect, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. An economic or social change resulting from a project by itself is not considered a significant impact on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.
- ***Mitigation*** consists of measures to avoid or substantially reduce the proposed Project's significant environmental impacts by:
    - Avoiding the impacts altogether by not taking a certain action or parts of an action;
    - Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
    - Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
    - Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the actions; or
    - Compensating for the impacts by replacing or providing substitute resources or environments.
- ***Cumulative Impacts*** are two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts. Cumulative impacts also involve consideration of the following:
    - The individual impacts may be changes resulting from a single project or separate projects.
    - The cumulative impact from several projects is the change in the environment that results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor, but collectively significant, projects taking place over time.

This Draft EIR uses a variety of terms to describe the level of significance of adverse impacts. These terms are defined as follows:

- ***Less than significant***: An impact that is adverse but that does not exceed the defined thresholds of significance. Less than significant impacts do not require mitigation.
- ***Significant***: An impact that exceeds the defined thresholds of significance and would or could cause a substantial adverse change in the environment. Mitigation measures are recommended to eliminate the impact or reduce it to a less than significant level.
- ***Significant and unavoidable***: An impact that exceeds the defined thresholds of significance and cannot be eliminated or reduced to a less than significant level through the implementation of mitigation measures.

2.4 Decision-Making Process

As stated above, CEQA requires Kern County, as the Lead Agency, to solicit and consider input from other interested agencies, citizen groups, and individual members of the public. CEQA also requires the proposed Project to be monitored after it has been permitted to ensure that mitigation measures are carried out.

CEQA requires the lead agency to provide the public with full disclosure of the expected environmental consequences of the proposed Project and with an opportunity to provide comments. In accordance with CEQA, the following is the process for public participation in the decision-making process:

- **Initial Study (IS)/Notice of Preparation (NOP).** Kern County prepared and circulated an IS/NOP for 30 days to the responsible agencies, trustee agencies, and local agencies as well as other interested parties for review and comment beginning on April 24, 2024, and ending on May 24, 2024. See Section 2.5, *IS/NOP* (below), for additional information regarding the IS/NOP.
- **Draft EIR Preparation/Notice of Completion.** Kern County prepared this Draft EIR that incorporates and addresses public and agency comments in response to the IS/NOP and other comments received during the scoping process. Kern County has circulated this Draft EIR for review and comment to appropriate agencies and additional individuals and interest groups who have requested to be notified of EIR projects. Per Section 15105 of the CEQA Guidelines, this Draft EIR is subject to a 45-day public review period. Kern County will subsequently respond to each comment on this Draft EIR received in writing through a Response to Comments chapter in the Final EIR. Kern County will provide responses to comments to each agency or person who provides written comments on the Draft EIR a minimum of 10 business days before the scheduled Planning Commission hearing on the Final EIR and proposed Project.
- **Preparation and Certification of Final EIR**. The Kern County Planning Commission will consider the Final EIR and the proposed Project, acting in an advisory capacity to the Kern

County Board of Supervisors. Upon receipt of the Planning Commission's recommendation, the Board of Supervisors will also consider the Final EIR, all public comments, and the proposed Project, and take final action on the proposed Project. The Planning Commission and Board of Supervisors each will conduct a public hearing to consider the Final EIR, take public testimony, and then approve, conditionally approve, or deny the project.

2.5 Initial Study/Notice of Preparation and Scoping Meeting

2.5.1 Initial Study/Notice of Preparation

In accordance with CEQA Guidelines Section 15082 (a) (Notice of Preparation) and the County's Guidelines, the KCPNR circulated an IS/NOP for a 30-day public review. The IS/NOP was sent to the State Clearinghouse, public agencies, special districts, responsible and trustee agencies, and other interested parties for a public review period that began on April 24, 2024, and ended on May 24, 2024.

The purpose of the IS/NOP was to formally convey that Kern County, as the Lead Agency, solicited input regarding the scope and proposed content of this Draft EIR. The IS/NOP, scoping meeting, and community workshop materials, comment letters received, and a complete summary of all scoping comments are included as Appendix A.

2.5.2 Scoping Meeting

Pursuant to Section 15082 (c)(1) of the CEQA Guidelines, for projects of statewide, regional, or area-wide significance, the Lead Agency is required to conduct at least one scoping meeting. The scoping meeting is for jurisdictional agencies and interested persons or groups to provide comments regarding, but not limited to, the range of actions, alternatives, mitigation measures, and environmental effects to be analyzed. Kern County hosted a scoping meeting on May 15, 2024, at the KCPNR, located at 2700 "M" Street, Suite 100, Bakersfield, California. During the May 15, 2024, scoping meeting, no members of the public were present, and no testimony was given.

The following summarizes the specific environmental concerns raised in written comments received during the IS/NOP public review period. The IS/NOP and all comments received are included in Appendix A.

2.5.3 Written Comments

The County received seven comment letters in response to the IS/NOP. The comments are summarized in **Table 2-1:** *Summary of Comments on the IS/NOP*.

Table 2-1: Summary of Comments on the IS/NOP

Commenter	Summary of Comment
State	
State of California—Geologic Energy Management Division Letter June 20, 2024	Indicates there are 41 known oil or gas wells within the proposed Project boundary and lists the wells in a table with the expectation that the wells will be re-abandoned pursuant to current California law, prior to development activities. Advises against building over, or in any way impeding access to, oil, gas, or geothermal wells, and that all wells identified on the development parcel prior to, or during, development activities be tested for liquid and gas leakage. Recommends that information on the known wells and any other pertinent information obtained after the issuance of this letter, be communicated to the Kern County recorder for inclusion in the title information of the subject real property. Recommends that any soil containing hydrocarbons be disposed in accordance with all laws, and to notify authorities if soil containing significant amounts of hydrocarbons is discovered during development.
Native American Heritage Commission Letter April 26, 2024	Recommends consultation with California Native American tribes that exist in the vicinity of the Project site, pursuant to AB 52 and SB 18 tribal notification requirements. Provides recommendations for cultural resource assessment.
State of California—Department of Conservation, Division of Land Resource Protection Letter May 15, 2024	Indicates that the Project site contains Prime Farmland, Farmland of Statewide Importance, and Unique Farmland, as well as areas subject to Williamson Act contracts. Recommends consideration and discussion of any loss or conversion of agricultural land with several specific points to address including mitigation and agricultural easements. Recommends discussion of the compatibility with Williamson Act requirements.
State of California—Natural Resources Agency Department of Fish and Wildlife Letter May 31, 2024	Indicates the Project site is in the geographic range of several special-status animal and plant species, that Project facilities be sited to avoid the Buttonwillow Ecological Reserve with a buffer, and Project facilities and components be permeable to wildlife. Indicates the need for conservation of offsite lands to compensate for proposed Project impacts, with recommended considerations. Address impacts and set forth mitigation measures regarding giant kangaroo rat (*Dipodomys ingens*), San Joaquin [Nelson's] antelope squirrel (*Ammospermophilus nelsoni*), San Joaquin kit fox (*Vulpes macrotis mutica*), Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), Swainson's hawk (*Buteo swainsoni*), tricolored blackbird (*Agelaius tricolor*), blunt-nosed leopard lizard (*Gambelia sila*), Crotch's bumblebee (*Bombus crotchii*), American badger (*Taxidea taxus*), Buena Vista Lake ornate shrew (*Sorex ornatus relictus*), San Joaquin pocket mouse (*Perognathus inornatus*), Tulare grasshopper mouse (*Onychomys torridus tularensis*), burrowing owl (*Athene cunicularia*), loggerhead shrike (*Lanius ludovicianus*), Northern harrier (*Circus hudsonius*), Blainville's horned lizard (*Phrynosoma blainvillii*), San Joaquin coachwhip (*Masticophis flagellum*), western spadefoot toad (*Spea hammondii)*, Special-Status Plants, California jewelflower (*Caulanthus californicus*), Kern mallow (*Eremalche kernensis*), San Joaquin woollythreads (*Monolopia* [*=Lembertia*] *congdonii*), and migratory and non-migratory nesting birds.
Local Agencies	
Kern County Public Works Department Letter May 13, 2024	Recommends that Kern County may require Irrevocable Offers of Dedication to future roadways that are currently planned, but will not be built, within the Project boundary.

Table 2-1: Summary of Comments on the IS/NOP

Commenter	Summary of Comment
Interested Parties	
California Native Plant Society and Defenders of Wildlife Letter on May 24, 2024	Indicates that the Project site has potential to support American badger, San Joaquin kit fox, Blunt-nosed leopard lizard, Tipton kangaroo rat, Burrowing owl, Swainson's hawk, Giant garter snake, Nelson's antelope squirrel, Western spadefoot, and loggerhead shrike. This coalition supports the development of renewable energy, but states development projects should avoid areas with high conservation values for natural resources, such as special-status species, areas of high biodiversity, or habitat connectivity corridors. Recommendations include consultation with responsible trustee wildlife agencies to determine the scope and appropriate protocols for the biological surveys and consultation with the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service for the need to obtain an Incidental Take Permit. Indicates that: qualified biological consultants should conduct biological site evaluations using appropriate survey protocols and during the appropriate time of year to discern species presence; and the environmental analysis must consider cumulative impacts.
Gregg Manston, Debra Copple, Ross Manston Honeycott, Inc. Letter May 6, 2024	The Commenters are owners of 7.5 acres of land located adjacent to the Project site. Indicates lack of support for solar panels constructed within 500 feet of the borders of these specific individual's properties due to noise and environmental concerns about hazardous materials from solar chips. Indicates that solar chips can infiltrate the soil causing environmental damage. Additional concerns include abandonment of obsolete panels.

Key: AB = assembly bill; SB = Senate Bill

2.5.4 Availability of the Draft Environmental Impact Report

This Draft EIR has been distributed directly to agencies, organizations, and interested groups and persons for comment during a 45-day review period in accordance with Section 15087 of the CEQA Guidelines. This Draft EIR and the full administrative record for the proposed Project, including all studies, are available for review during normal business hours, Monday through Friday, at the KCPNR located at:

Kern County Planning and Natural Resources Department
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2370
Contact: Jack Foster, Planner II
Phone: (661) 862-5010, Fax: (661) 862-8601
Fosterja@kerncounty.com

This Draft EIR is also available on the KCPNR website at:
https://kernplanning.com/environmental-doc/buttonbush-solar-project/

Additionally, this Draft EIR is available at the following libraries:

Kern County Library/Beale	**Kern County Library/Wasco**	**Kern County Library/Buttonwillow**
Local History Room	1102 7th St. 101	101 North Main Street
701 Truxtun Avenue	Wasco, California 93280	Buttonwillow, California 93206
Bakersfield, California 93301		

2.6 Format and Content

As stated above, this Draft EIR addresses the potential environmental effects of the proposed Project and was prepared following input from the public, trustee agencies, responsible agencies, and affected agencies, and through the EIR scoping process. The contents of this Draft EIR were based on the findings provided in the IS/NOP and public and agency input. Based on the findings of the IS/NOP, Kern County determined that an EIR is required to evaluate potentially significant environmental effects regarding the following resources and environmental topics:

- Aesthetics and Visual Resources
- Agricultural and Forest Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Mineral Resources
- Noise
- Public Services
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

The IS/NOP also considered the following environmental topics, determined that no impacts would occur regarding them, and, therefore, that they do not require analysis in this EIR:

- Population and Housing
- Recreation

A brief explanation of why these topics were not included in the Draft EIR can be found in the IS/NOP and in Chapter 5, *Consequences of Project Implementation*.

2.6.1 Required Environmental Impact Report Content and Organization

Table 2-2: *Required Environmental Impact Report Contents*, contains a list of CEQA requirements for EIRs, along with a reference to the chapter in which the requirements are addressed in this Draft EIR.

Table 2-2: Required Environmental Impact Report Contents

Requirement (CEQA Section)	Location in EIR
Table of Contents (Section 15122)	Table of Contents
Summary (Section 15123)	Chapter 1
Introduction (Section 15132)	Chapter 2
Project Description (Section 15124)	Chapter 3
Environmental Setting (Section 15125)	Chapter 4
Significant Environmental Impacts (Section 15126.2)	Chapter 4
Mitigation Measures (Section 15126.4)	Chapter 4
Cumulative Impacts (Section 15130)	Chapter 4
Effects Found not to be Significant (Section 15128)	Chapters 1, 4, and 5
Unavoidable Significant Environmental Impacts (Section 15126.2(c))	Chapters 4 and 5
Significant Irreversible Changes (Section 15126.2(d))	Chapter 5
Growth-Inducing Impacts (Section 15126.2(e))	Chapter 5
Alternatives to the Proposed Project (Section 15126.6)	Chapter 6
Response to Comments (Section 15132)	Chapter 7
Organizations and Persons Consulted (Section 15129)	Chapter 8
List of Preparers (Section 15129)	Chapter 9
References (Section 15148)	Chapter 10

Key: CEQA = California Environmental Quality Act; EIR = Environmental Impact Report

The content and organization of this Draft EIR satisfy the requirements of CEQA and the CEQA Guidelines. This Draft EIR is organized into the following sections:

- Chapter 1, *Executive Summary*, provides a summary of the project description and a summary of the environmental impacts and mitigation measures.
- Chapter 2, *Introduction*, provides CEQA compliance information, an overview of the decision-making process, organization of the EIR, and a list of responsible and trustee agencies.
- Chapter 3, *Project Description*, provides a description of the location, characteristics, and objectives of the proposed Project, and the relationship of the proposed Project to applicable plans and policies.
- Chapter 4, *Environmental Setting*, *Impacts, and Mitigation Measures*, contains a detailed environmental analysis of the existing conditions, proposed Project's impacts, mitigation measures, and cumulative impacts.
- Chapter 5, *Consequences of Project Implementation*, presents an analysis of the proposed Project's cumulative and growth-inducing impacts and other CEQA requirements, including significant and unavoidable impacts and irreversible commitment of resources.
- Chapter 6, *Alternatives*, describes a reasonable range of alternatives to the proposed Project that could reduce the significant environmental effects that cannot be avoided.
- Chapter 7, *Responses to Comments*, is reserved for responses to comments on this Draft EIR.

- Chapter 8, *Organizations and Persons Consulted*, lists the organizations and persons contacted during preparation of this Draft EIR.
- Chapter 9, *List of Preparers*, identifies persons involved in the preparation of this Draft EIR.
- Chapter 10, *Bibliography*, identifies reference sources for this Draft EIR.
- *Appendices* provide information and technical studies that support the environmental analysis set forth in this Draft EIR.

The analysis of each environmental category in Chapter 4, *Environmental Setting*, *Impacts, and Mitigation Measures*, is organized as follows:

- "Introduction" provides a brief overview of the environmental topic that is analyzed in the respective section.
- "Environmental Setting" describes the physical conditions that existed at the time the environmental review commenced and that may influence or affect the topic being analyzed.
- "Regulatory Setting" summarizes applicable: State and Federal laws; regional plans and regulations; and Kern County goals, policies, implementation measures, and regulations (for example, Kern County General Plan [KCGP] goals, policies, and implementation measures, and Kern County zoning and building code regulations).
- "Impacts and Mitigation Measures" discusses the impacts of the proposed Project, presents the determination regarding the significance of each impact, and provides a discussion of feasible mitigation measures to reduce significant impacts.
- "Cumulative Setting, Impacts, and Mitigation Measures" provides a discussion of: the projects included in the analysis of cumulative impacts; and whether the proposed Project would make a cumulatively considerable contribution to a significant cumulative impact and, if so, mitigation measures to avoid or reduce the proposed Project's contribution to the significant cumulative impact.

2.7 Responsible and Trustee Agencies

If Kern County (as the Lead Agency) approves the proposed Project, the proposed Project will require oversight, approvals, and/or permits from other public agencies in order to be implemented. Other such agencies with discretionary approval authority over the proposed Project are referred to as "responsible agencies" or "trustee agencies." Pursuant to the CEQA Guidelines, responsible and trustee agencies are defined (in pertinent part) as follows:

- *A "responsible agency" is a public agency that proposes to carry out or approve a project, for which a lead agency is preparing or has prepared an EIR or Negative Declaration. For the purposes of CEQA, the term "responsible agency" includes all public agencies other than the lead agency that have discretionary approval power over the project* (Section 15381).

- *A "trustee agency" is a state agency having jurisdiction by law over natural resources affected by a project that are held in trust for the people of the State of California …* (Section 15386).

The various public, private, and political agencies and jurisdictions that might have an interest in the proposed Project (based on the findings of the environmental analysis) include, but are not limited to, the following:

2.7.1 Federal Agencies

- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- Federal Aviation Administration

2.7.2 State Agencies

- California Air Resources Board
- California Department of Conservation, Geologic Energy Management Division
- California Department of Fish and Wildlife
- California Department of Public Health
- California Department of Toxic Substances Control
- California Department of Transportation
- California Energy Commission
- California Highway Patrol
- California Native American Heritage Commission
- California Office of Historic Preservation
- California State Lands Commission
- Governor's Office of Land Use and Climate Innovation
- Office of the State Fire Marshall
- Regional Water Quality Control Board, Central Valley District
- State Water Resources Control Board

2.7.3 Local Agencies

- San Joaquin Air Pollution Control District
- Kern Council of Governments
- Kern County Public Works Department
- Kern County Fire Department
- Kern County Planning and Natural Resources Department
- Kern County Public Health Services Department, Environmental Health Division

The above list takes a conservative approach to identifying agencies that might have an interest in the proposed Project, however some of these agencies might not have an interest in, and/or comment on, the proposed Project. Additional permits or approvals from responsible and trustee agencies may be required for the proposed Project and determined during the circulation of this Draft EIR.

2.8 Incorporation by Reference

In accordance with Section 15150 (Incorporation by Reference) of the CEQA Guidelines, to reduce the size of the report, the following documents are hereby incorporated by reference into this Draft EIR and are available for public review at the KCPNR. A brief summary of the scope and content of these documents is provided below.

2.8.1 Kern County General Plan

The KCGP is a policy document with planned land use maps and related information and is designed to give long-range guidance to County officials who make decisions affecting the growth and resources of the unincorporated Kern County jurisdiction, excluding the Metropolitan Bakersfield Planning Area. This document, adopted on June 14, 2004, and last amended on September 22, 2009, helps to ensure that day-to-day decisions conform to the long-range program designed to protect and further the public interest as related to the County's growth and development and to mitigate environmental impacts. The KCGP also serves as a guide to the private sector of the economy in relating its development initiatives to the County's public plans, objectives, and policies.

2.8.2 Buttonwillow Community Development Plan

The Buttonwillow Community Development Plan (Specific Plan) is a community plan prepared by the Kern County Planning Department in 1974. The Specific Plan is a comprehensive policy document to guide future development of Buttonwillow and implement the General Plan. Site 1 of the proposed Project is partially located within the area that is subject to the Buttonwillow

Community Development Plan and, therefore, is subject to applicable policies and measures of the Buttonwillow Community Development Specific Plan.

2.8.3 Zoning Ordinance of Kern County

According to Chapter 19.02.020, Purposes, Title 19 (Zoning Ordinance of Kern County) was adopted to promote and protect the public health, safety, and welfare through the orderly regulation of land uses throughout the unincorporated area of the County. The purposes of the Zoning Ordinance of Kern County are to:

- Provide the economic and social advantages resulting from an orderly planned use of land resources.
- Encourage and guide development consistent with the KCGP.
- Divide Kern County into Zoning Districts of a number, size, and location deemed necessary to carry out the purposes of the KCGP and Zoning Ordinance of Kern County.
- Regulate the size and use of lots, yards, and other open spaces.
- Regulate the use, location, height, bulk, and size of buildings and structures.
- Regulate the intensity of land use.
- Regulate the density of population in residential areas.
- Establish requirements for off-street parking.
- Regulate signs and billboards.
- Provide for the enforcement of the regulations of Chapter 19.02 of the Zoning Ordinance of Kern County.

2.8.4 Regional Transportation Plan/Sustainable Communities Strategy

The latest Regional Transportation Plan (RTP) was prepared by the Kern Council of Governments (Kern COG) and was adopted on July 21, 2022. The 2022 RTP is a 24-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. The RTP was developed through a federally required continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, State and Federal agencies. Included in the 2022 RTP is the Sustainable Communities Strategy (SCS) required by California's Sustainable Communities and Climate Protection Act, of Senate Bill 375. The California Air Resources Board set targets for Kern County's greenhouse gas (GHG) emissions reductions from passenger vehicles and light-duty trucks at 9 percent per capita by 2020 and 15 percent per capita by 2035 as compared to 2005. In addition, Senate Bill 375 provides for closer integration of the RTP/SCS with the Regional Housing Needs Allocation ensuring consistency between low-income housing need and transportation planning. Kern COG is a federally designated

Metropolitan Planning Organization and a state designated Regional Transportation Planning Agency. These designations formally establish Kern COG's role in transportation planning. Preparing an RTP is one of Kern COG's primary statutory responsibilities under federal and state law.

2.8.5 Kern County Airport Land Use Compatibility Plan

The purpose of the Kern County Airport Land Use Compatibility Plan (ALUCP) is to establish procedures and criteria by which Kern County and the affected incorporated cities can address compatibility issues when making planning decisions regarding airports and military operations areas and the land uses around them. In general, the ALUCP describes and maps influence areas in the vicinity of public use airports in Kern County where development restrictions are established to prevent the construction or placement of structures or objects which may be an obstruction to air navigation. The ALUCP covers airports in the unincorporated portions of the County and the affected incorporated cities of Bakersfield, California City, Delano, Shafter, Taft, Tehachapi, and Wasco. The ALUCP was last updated in 2012. As required by Aeronautics Law, Public Utilities Code (Chapter 4, Article 3.5), proposals for public or private land use developments that occur within defined airport influence areas are subject to compatibility review. The principal airport land use compatibility concerns addressed by the plan are: (1) exposure to aircraft noise, (2) land use safety with respect to both people and property on the ground and the occupants of aircraft, (3) protection of airport air space, and (4) general concerns related to aircraft overflights.

2.9 Sources

This Draft EIR is dependent upon information from many sources. Some sources are studies or reports that have been prepared specifically for this document. Other sources provide background information related to one or more issue areas that are discussed in this document. The sources and references used in the preparation of this EIR are listed in Chapter 10, *Bibliography*, and are available for review by appointment during normal business hours at the KCPNR, located at 2700 "M" Street, Suite 100, Bakersfield, CA 93301-2370. This EIR is also available on the KCPNR website at: https://kernplanning.com/environmental-doc/buttonbush-solar-project/.

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Chapter 3

Project Description

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Chapter 3
Project Description

3.1 Introduction

This Draft Environmental Impact Report (EIR) has been prepared by Kern County (County), which is the California Environmental Quality Act (CEQA) Lead Agency, to identify and evaluate potential environmental impacts associated with implementation of 29SC 8me LLC's (Project proponent) proposed Buttonbush Solar and Storage Project (proposed Project). The proposed Project consists of seven (7) sites (Site 1 through 6 and Site 8), each of which would contain a photovoltaic (PV) solar facility and associated infrastructure that would enable a total combined generation of up to 2 gigawatts (GW) (2,000 megawatts) of renewable electrical energy with a combined 2 GW Battery Energy Storage System (BESS) capable of storing approximately 16,000 megawatt-hours (MWh) or 16 gigawatt-hours (GWh) of energy, on approximately 11,983 acres of privately owned land and across 128 parcels of land, of which the BESS would occupy no more than 550 acres. As proposed in the Notice of Preparation (NOP) published April 24, 2024, the Buttonbush Solar and Storage Project previously consisted of a total of eight (8) sites. The previously proposed Site 7 has since been withdrawn, and no analysis regarding Site 7 has been included in the remaining sections of this Draft EIR document.

The proposed Project's permanent facilities for the remaining sites (Sites 1 through 6, and Site 8) would include solar panels, solar racking, inverters, service roads, a power collection system, communication cables, microwave towers, overhead and underground transmission lines, electrical switchyards, project substations, BESS(s), and operations and maintenance (O&M) facilities.

The proposed Project involves a 500-kV, overhead gen-tie and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at the Pacific Gas & Electric (PG&E) Midway Substation. PG&E will modify the Midway Substation's 500 kV yard, within PG&E's Midway Substation property boundary, to accommodate the proposed Project's interconnection.

3.2 Project Location

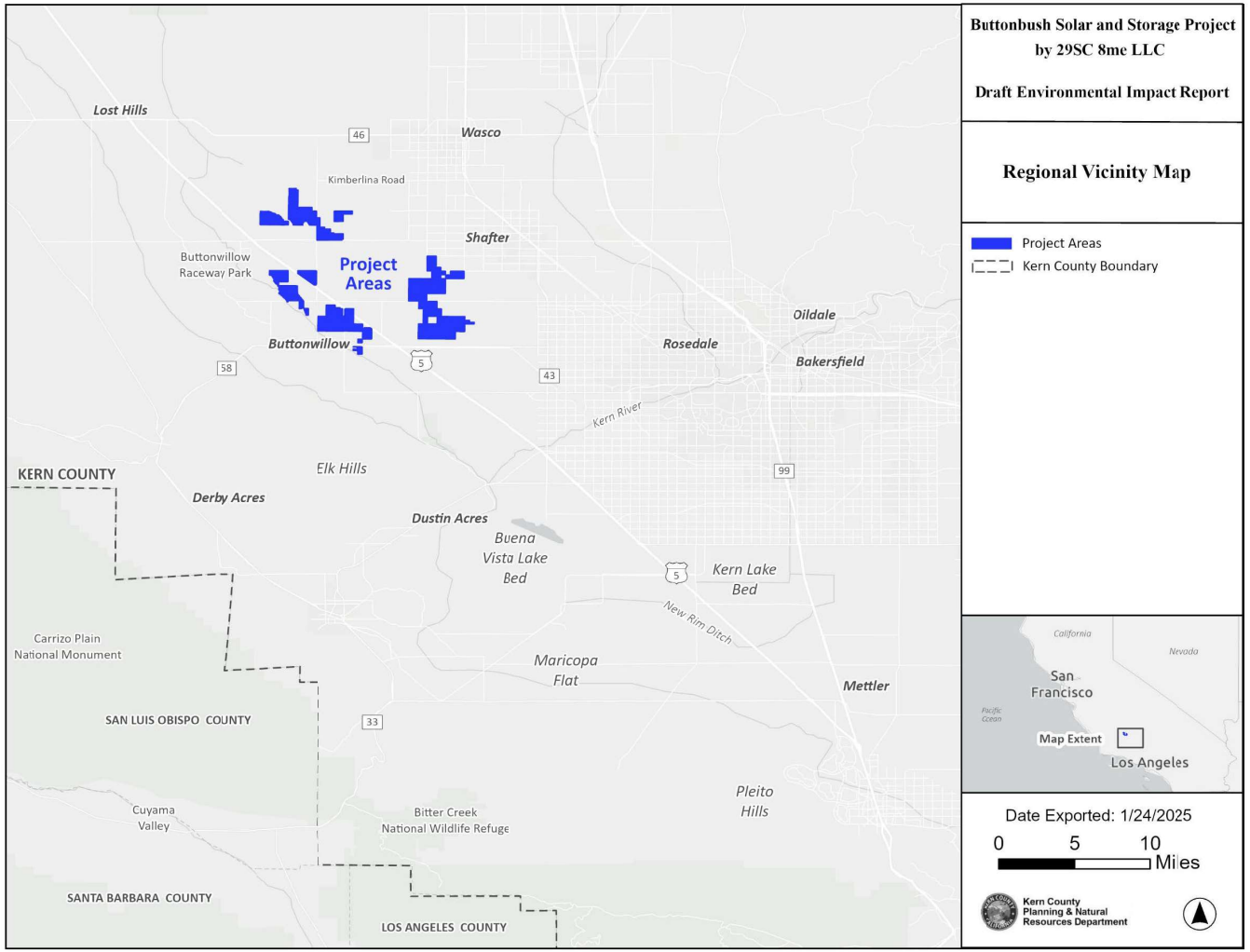
As stated above, the proposed Project would be located on a total of 11,983 acres and across 128 parcels of privately owned land currently utilized for agricultural uses in the valley region of Kern County, as displayed in **Figure 3-1:** *Regional Vicinity*. There are several separate sites that constitute the entire Project site, which are all located within unincorporated Kern County, directly north of the community of Buttonwillow, approximately four miles west of the City of Bakersfield, two miles west of the City of Shafter, and approximately seven miles southwest of the City of Wasco. Each site contains multiple Accessor Parcel Numbers (APN) and are listed in **Table 3-1:** *Project Assessor Parcel Numbers*. The proposed Project straddles and crosses Interstate 5 (I-5) and is east of Buttonwillow Raceway Park, north of State Route (SR) 58, and south of Kimberlina Road. The Project site boundaries and aerial views of the project location are shown in **Figures 3-2A–F:** *Project Site Boundaries* [*Site 1, Site 2,3, and 4, Site 5, Site 6, Site 8*], and **Figure 3-3,** *Project Aerial*, respectively.

According to the U.S. Geological Survey (USGS), the Project site is within the Wasco SW, Semitropic, Rio Bravo, Buttonwillow, and Lokern USGS 1:24,000 topographic maps (7.5-minute quadrangle). The proposed Project is located within the areas mapped as follows:

- Township 27 S, Range 23 E, portions of Sections 28, 33, and 34
- Township 28S, Range 23E, portions of Sections 1, 2, 3, 4, 5, 11, 12, 27, 28, 29, 32, 33, and 34
- Township 28S, Range 24E, all or portions of Sections, 23, 25, 26, 27, and 35 (portions) and 34 (all)
- Township 29S, Range 23E, all or portions of Sections 1, 3, 4, and 11, (portions) and 12 (all)
- Township 29S, Range 24E, all or portions of Sections 12 (all) and 1, 2, 6, 7, 8, 11, 13, 14, 17, 18, and 19 (portions)
- Township 29S, Range 25E, portions of Section 7

Properties within the Project site include a dairy, agricultural structures and single-family dwellings. Single-family dwellings on Tax Assessor's Parcel Numbers (APN) 087-040-04, 088-190-20, and 100-010-22 would be removed during project construction. Several other single-family dwellings and outbuildings are located on APNs 087-040-06, 103-010-42, 103-010-43, and 103-060-04 which are partially included in the Project site. The owners of these buildings have agreed to allow Project development on land they own, however the removal of dwellings on these Tax Assessor Parcels would not be required to accommodate Project development. A dairy, located on APN 088-220-16, will be removed prior to construction on that parcel.

Figure 3-1: Regional Vicinity



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Table 3-1: Project Assessor Parcel Numbers

Site 1					
100-010-13*	100-100-05	100-100-10	100-100-31	103-040-02	103-100-01
100-010-14	100-100-06	100-100-19	100-100-32	103-040-08*	103-100-02
100-010-22*	100-100-07	100-100-26*	103-030-45	103-040-14	103-100-23*
100-100-03	100-100-08	100-100-27	103-030-46	103-040-24	103-120-30
100-100-04	100-100-09	100-100-29*	—	—	—
Site 2					
087-200-02	087-200-16*	087-200-29	087-200-31*	087-200-39	100-020-19*
087-200-03	087-200-28*	087-200-30	087-200-37	087-200-54*	100-030-08
087-200-05	—	—	—	—	—
Site 3					
087-160-01	087-170-04*	087-170-12	087-170-13*	087-200-35*	087-210-10*
087-160-19	—	—	—	—	—
Site 4					
087-160-53	—	—	—	—	—
Site 5					
103-010-18	103-010-28	103-010-40*	103-060-09	103-070-08	103-070-17
103-010-19	103-010-30	103-010-43*	103-060-10	103-070-13	103-070-18
103-010-20	103-010-31	103-060-04*	103-060-11	103-070-14	103-070-19
103-010-21	103-010-32	103-060-05	103-060-12	103-070-15	104-050-01
103-010-25	103-010-39*	103-060-08	103-070-07	103-070-16	104-050-08
Site 6					
088-150-01*	088-180-07	088-180-34	088-220-16	088-220-21	088-220-25
088-180-02	088-180-10	088-190-20	088-220-17	088-220-22	088-220-31
088-180-04	088-180-11	088-210-01	088-220-19	088-220-23	088-220-32
088-180-06	088-180-12	088-220-15	088-220-20	088-220-24	—
Site 8					
069-340-28	087-010-20	087-040-07*	087-060-01	087-060-09	087-060-15
069-350-07*	087-010-22	087-050-18	087-060-05	087-060-11	087-060-39
069-350-09*	087-020-01	087-050-28	087-060-06	087-060-12	—
087-010-11	087-040-01*	087-050-29*	087-060-07	087-060-13	—
087-010-18	087-040-04	087-050-38	087-060-08	087-060-14	—
Existing PG&E Midway Substation*					
101-010-02	101-010-10	101-020-09	101-020-23	101-020-28	101-020-31
101-010-04	101-010-14	101-020-19	101-020-24	101-020-29	101-020-33
101-010-05	101-010-15	101-020-20	101-020-27	101-020-30	101-020-35
101-010-08	—	—	—	—	—

* Only a portion of parcel would be developed

** Included in study area for PG&E Substation, but not part of Conditional Use Permit acreage

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Figures 3-2: (A–F): Project Site Boundaries

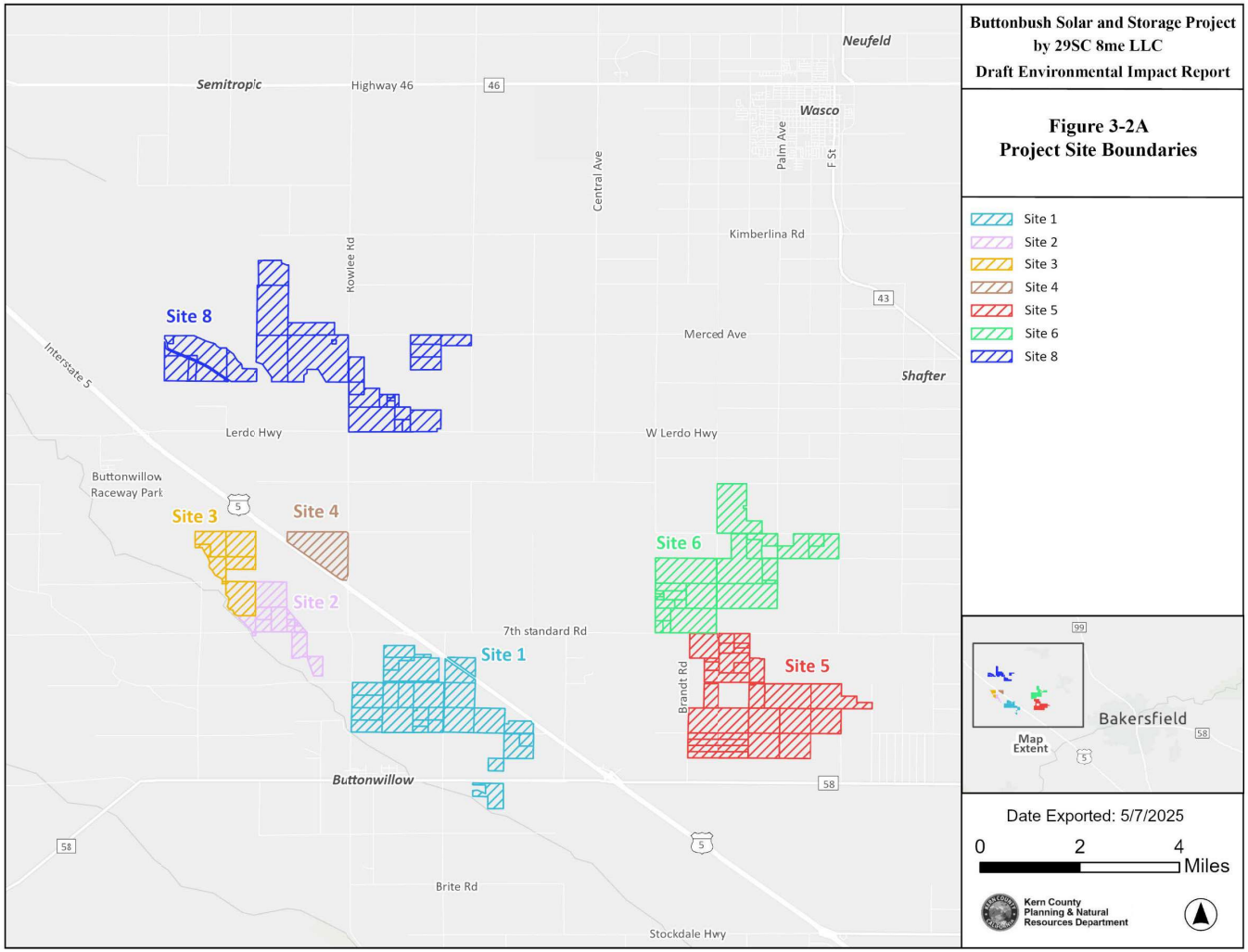


Figure 3-2: Proposed Site Boundaries (B)

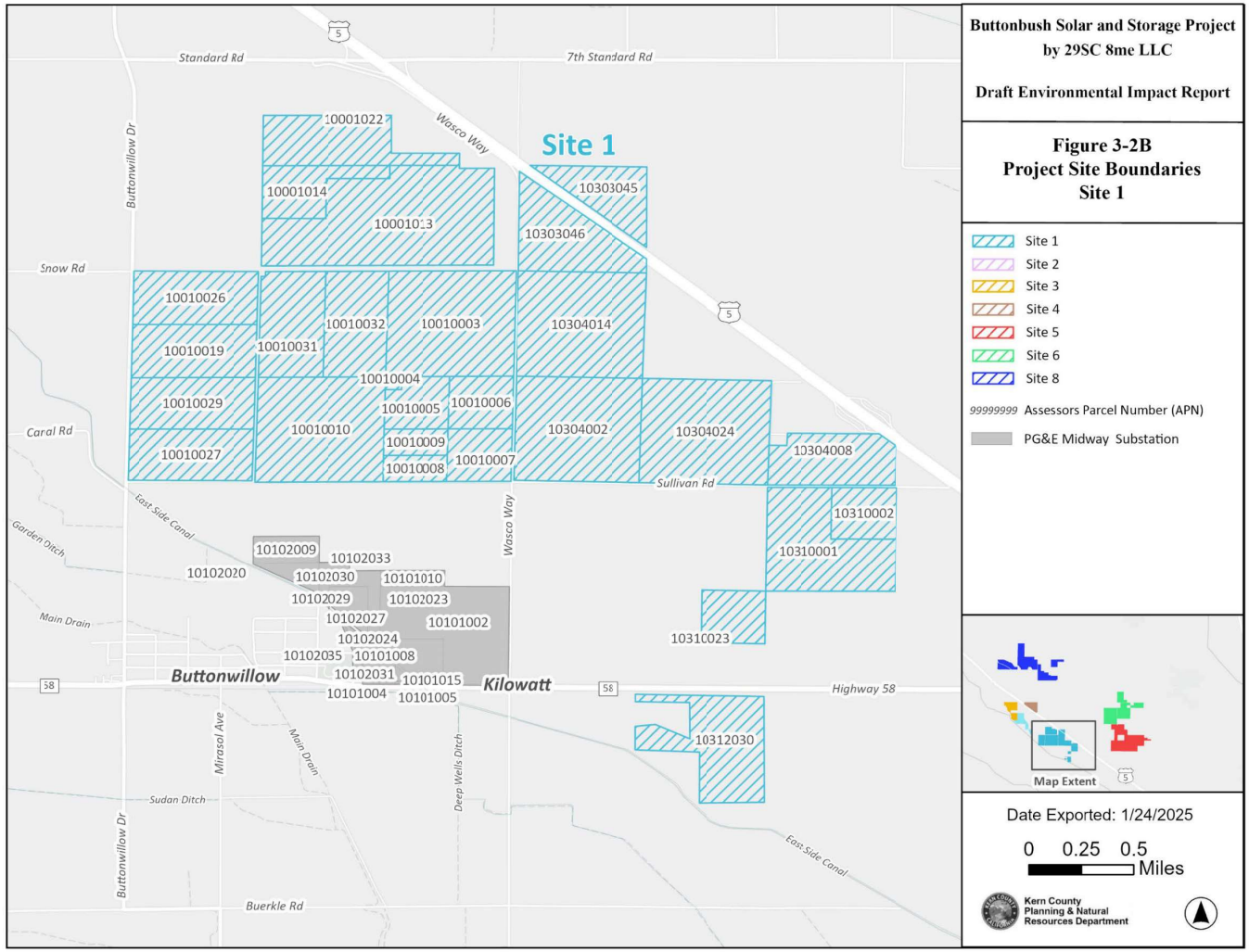


Figure 3-2: Proposed Site Boundaries (C)

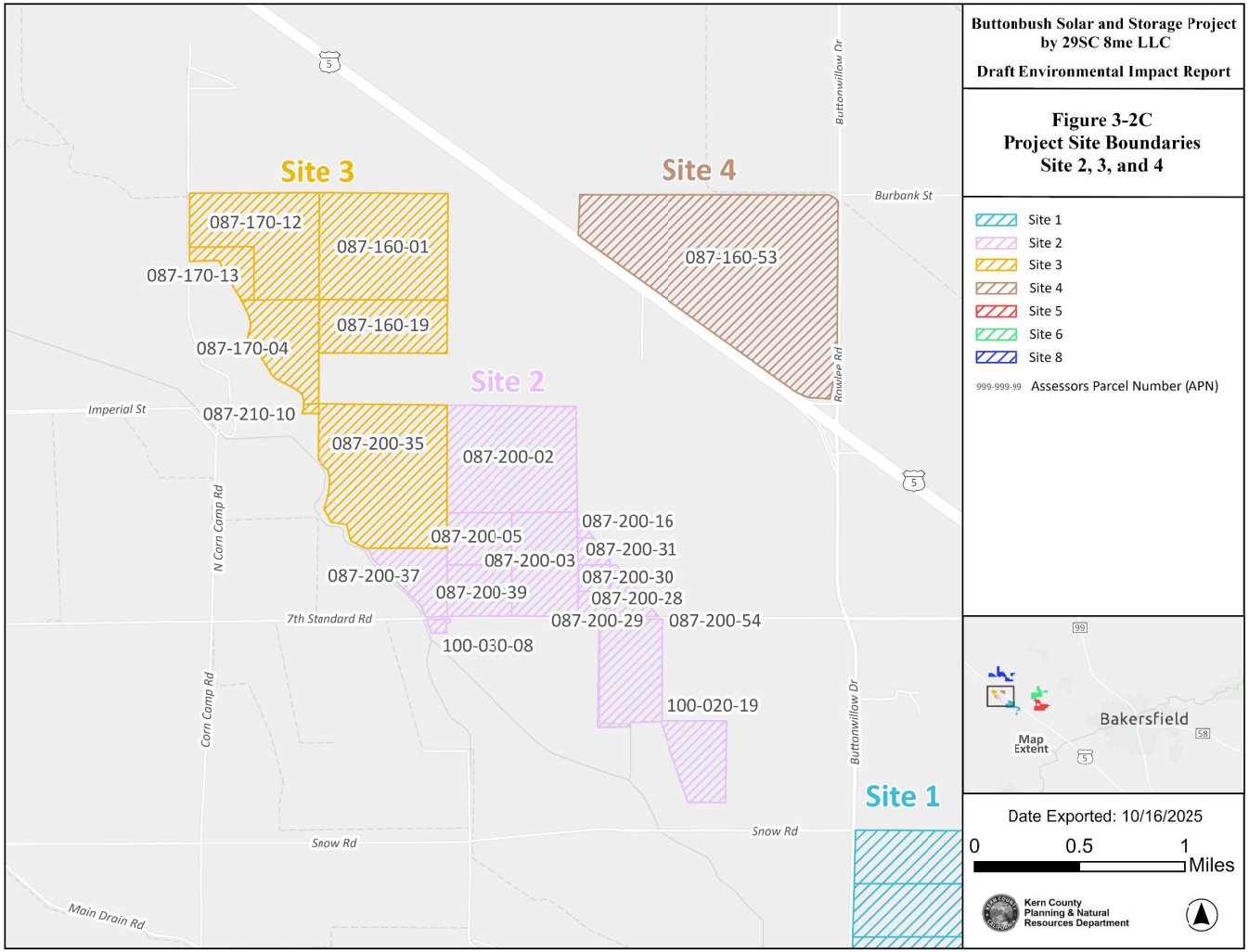


Figure 3-2: Proposed Site Boundaries (D)

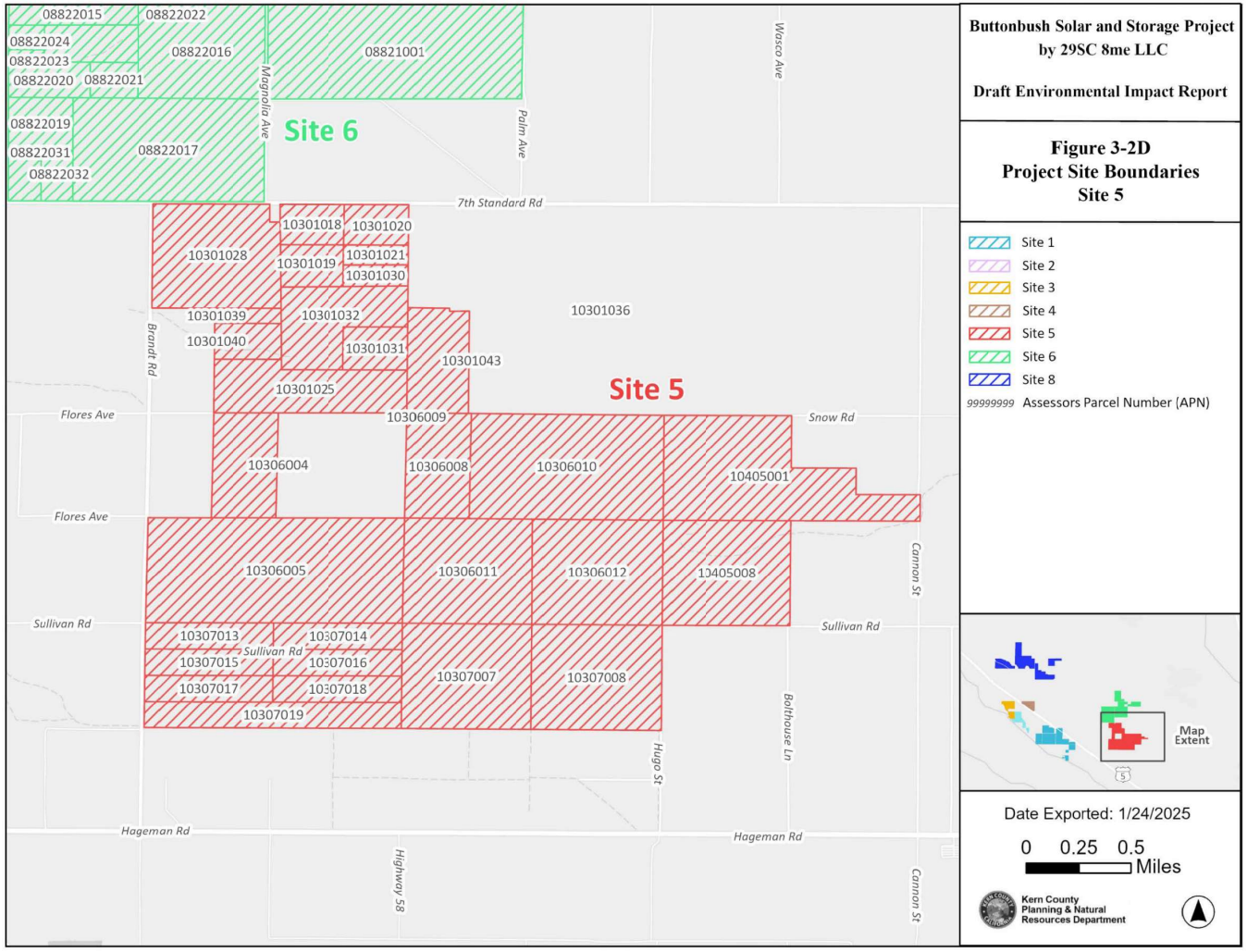


Figure 3-2: Proposed Site Boundaries (E)

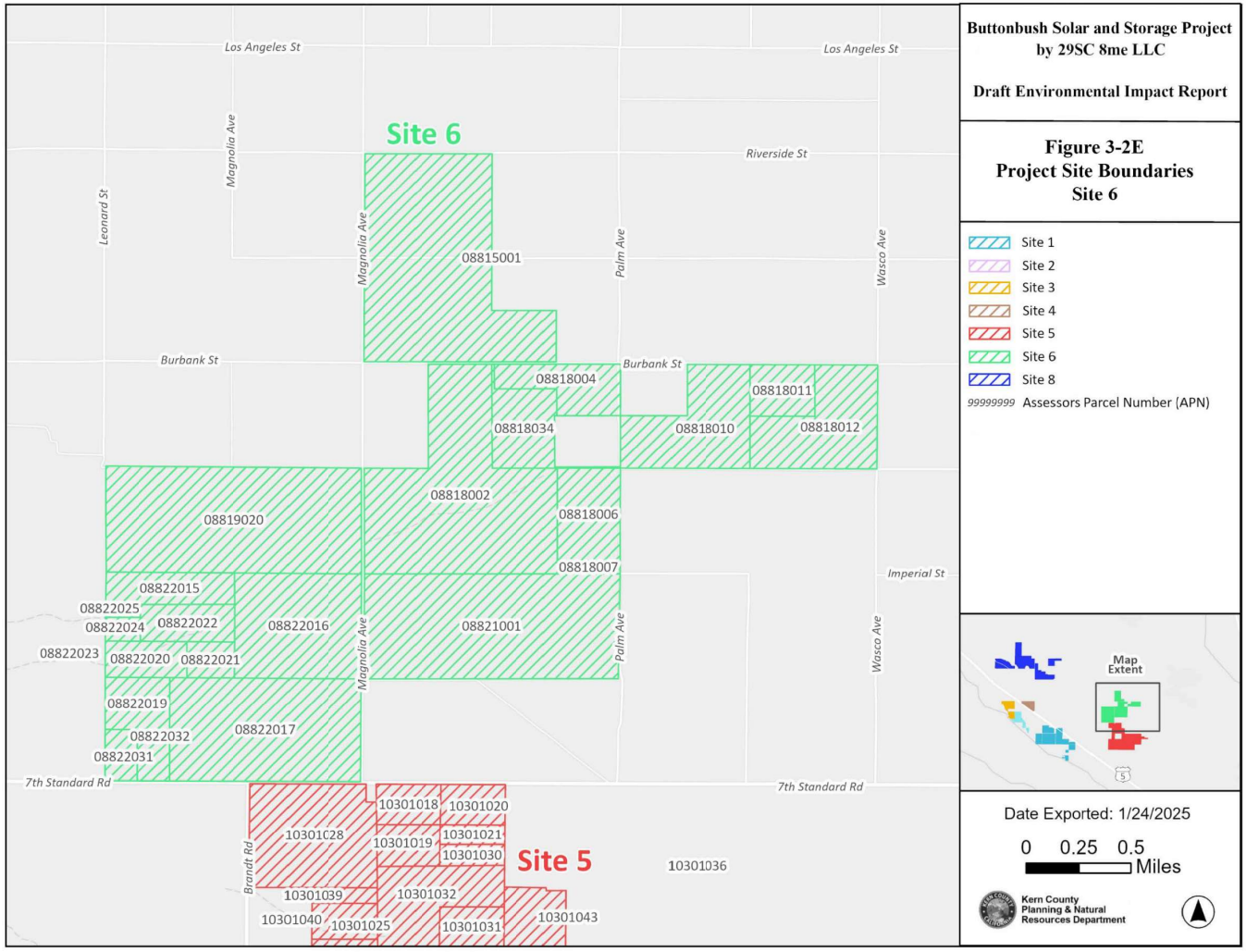


Figure 3-2: Proposed Site Boundaries (F)

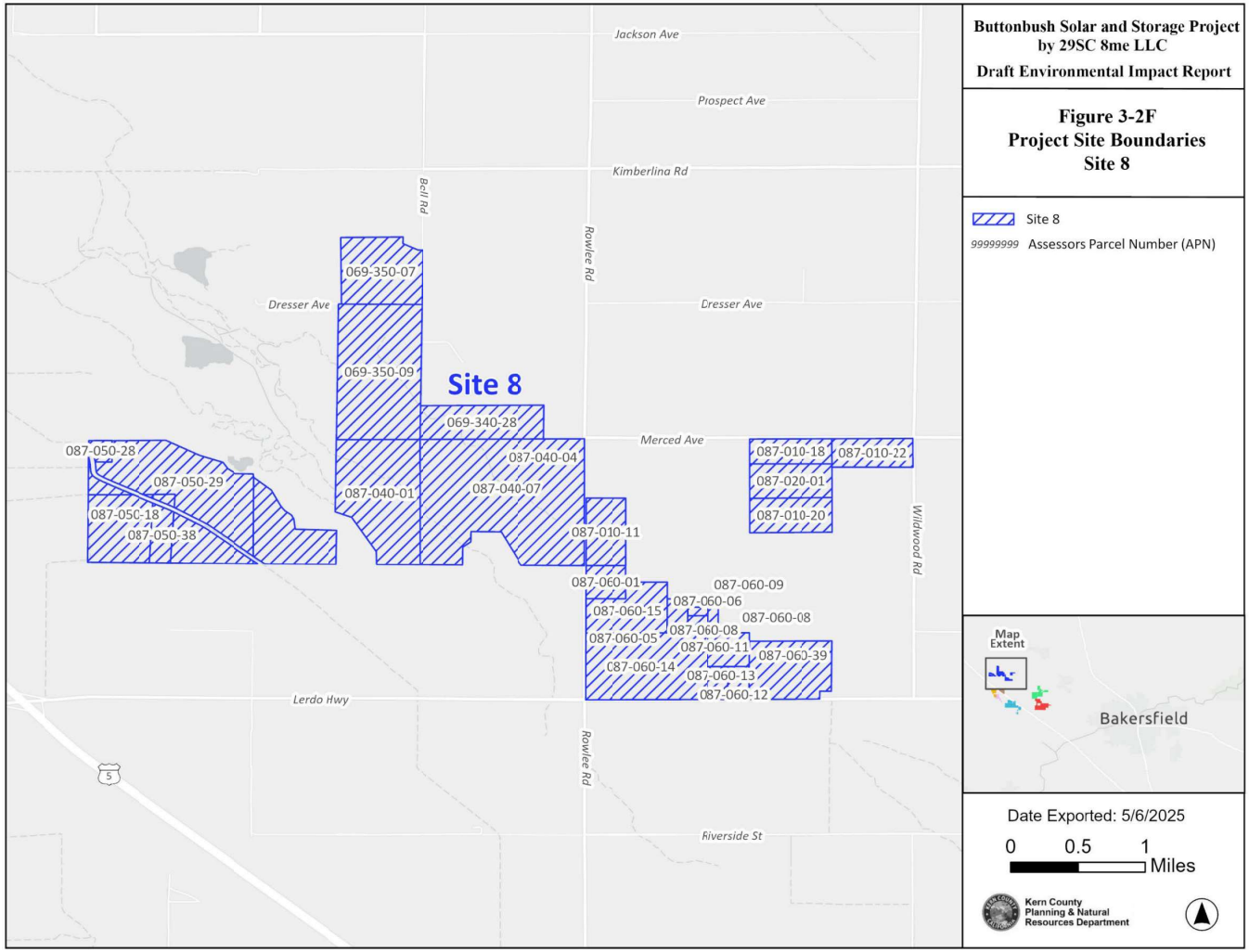
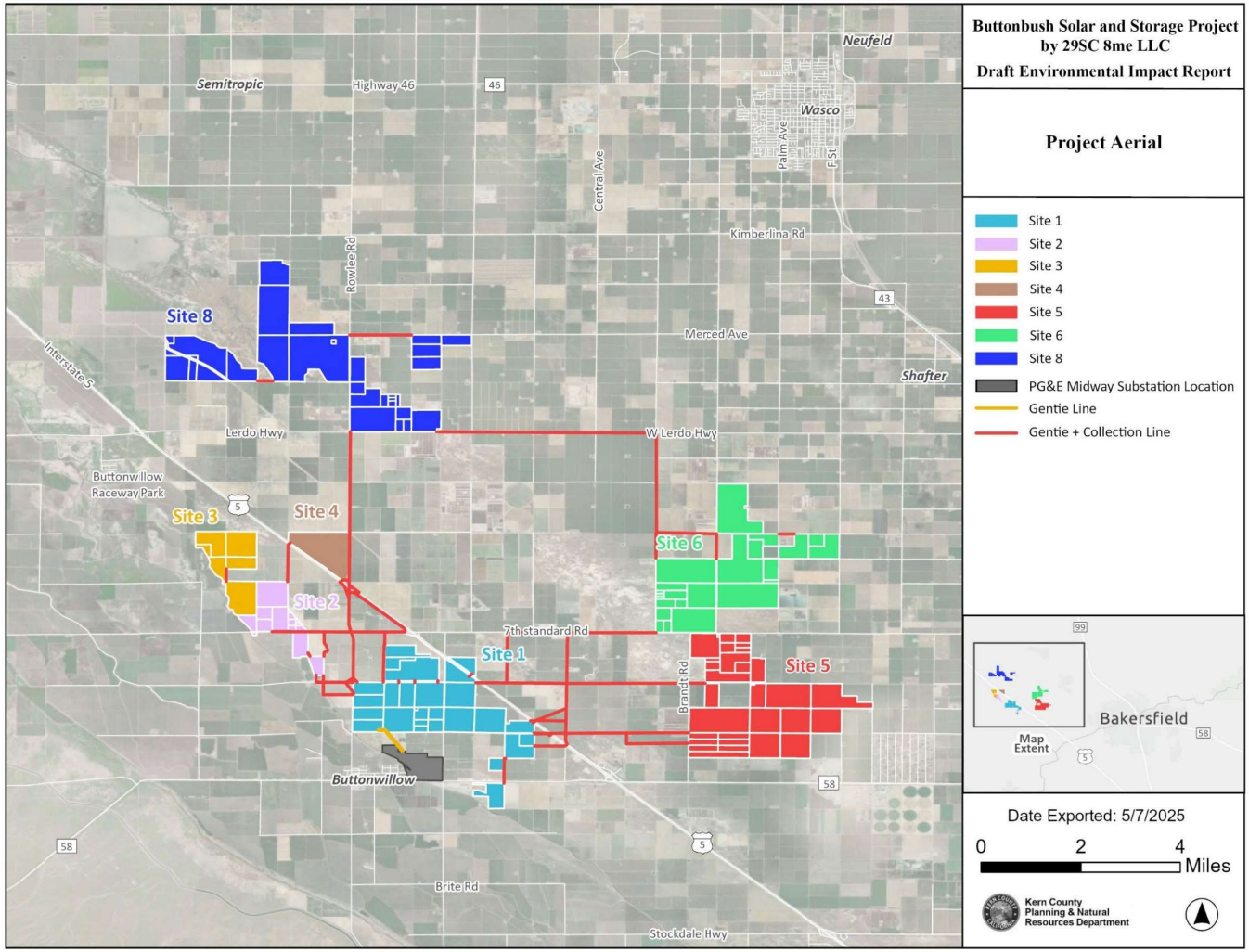


Figure 3-3: Project Aerial



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3.3 Discretionary Actions

The Buttonbush Solar and Storage by 29SC 8me LLC (Avantus) requires Kern County's approval of multiple general and specific plan amendments, Conditional Use Permits (CUPs), cancellation of Williamson Act Land Use and Farmland Security Zone Contracts, and public access street vacations. As stated previously, since the circulation of the NOP, Site 7 has since been withdrawn, and no analysis regarding Site 7 has been included in the remaining sections of this Draft EIR document. The resulting removal of Site 7 includes several withdrawn requests, and are noted as follows:

- Withdrawal of Conditional Use Permit No. 18, Map 78 to allow for the construction and operation of a commercial-scale solar facility (Site 7) within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.
- Withdrawal of General Plan Amendment No. 11, Map 78 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines within the Project boundaries (Site 7) in Section 19 of Township 28 South and Range 24 East, MDB&M.
- Withdrawal of request for the cancellation of approximately 480 acres of active Williamson Act Land Use Contracts (WALUCC) (Site 7).

Other site refinements were made, resulting in the following discretionary actions for the Buttonbush Solar and Storage Project, by site:

Site 1

Conditional Use Permits

- CUP No. 17 Map 98 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 1 generating capacity of 441 MW, and approximately 4,000 MWh of energy storage, on approximately 1,300 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.
- CUP No. 19 Map 98 to allow for the construction and operation of a microwave tower on approximately 77 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.F of the Kern County Zoning Ordinance.
- CUP No. 25 Map 99 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 1 generating capacity of 441 MW, and approximately 4,000 MWh of energy storage, on approximately 989 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.

General/Specific Plan Amendments

- GPA No. 4, Map 98 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below and shown in **Figure 3-4A:** *Circulation Element Amendment Site 1*.

  - A portion of the Section line between Section 1, T29 S R23 E, and Section 2, T29 S R23 E MDB&M
  - A portion of the north-south mid-section line of Section 1, T29 S R23 E MDB&M within the Project boundary
  - A portion of the east-west mid-section line of Section 1, T29 S R23 E MDB&M
  - The north half of the Section line between Section 11, T29 S R23 E MDB&M, and Section 12, T29 S R23 E MDB&M
  - The north half of the east half of the east-west mid-section line of Section 11, T29 S R23 E MDB&M
  - The north half of the north-south mid-section line of Section 12, T29 S R23 E MDB&M
  - The north half of the east-west mid-section line of Section 12, T29 S R23 E MDB&M

- SPA No. 5, Map 98 to the Circulation Element of the Buttonwillow Community Development Specific Plan to remove future road reservations on the section and mid-section lines as described below and shown in **Figure 3-4A:** *Circulation Element Amendment Site 1*.
  - The south half of the Section line between Section 11, T29 S R23 E MDB&M, and Section 12, T29 S R23 E MDB&M
  - The south half of the east half of the east-west mid-section line of Section 11, T29 S R23 E MDB&M
  - The south half of the north-south mid-section line of Section 12, T29 S R23 E MDB&M
  - The south half of the east-west mid-section line of Section 12, T29 S R23 E MDB&M

- GPA No. 8, Map 99 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below and shown in **Figure 3-4A:** *Circulation Element Amendment Site 1*.
  - A portion of the Section line between Section 6, T29 S R24 E MDB&M and Section 7, T29 S R24 E MDB&M within the Project boundary
  - The west half of the east-west mid-section line of Section 6, T29 S R24 E MDB&M
  - A portion of the south half of the north-south mid-section line of Section 6, T29 S R24 E MDB&M
  - The mid-section lines of Section 7, T29 S R24 E MDB&M
  - A portion of the Section line between Section 7, T29 S R24 E MDB&M and Section 8, T29 S R24 E MDB&M

Williamson Act Land Use Contract Cancellations

- WALUCC No. 24-03 by Hill Ranch Group, LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 310 acres of a Land Use Contract (Recorded Document Number 0197173644)

- WALUCC No. 24-04 by Hill Ranch Group, LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 237 acres of a Land Use Contract (Recorded Document Number 0197173645)
- WALUCC No. 24-18 by Starrh Ranch LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 158 acres of a Land Use Contract (Recorded in Book 4272, Page 947)
- WALUCC No. 24-27 by Ainhoa Land Holdings LP, on behalf of 29SC 8me LLC, for the cancellation of approximately 142 acres of a Land Use Contract (Recorded in Book 4640, Page 687)
- WALUCC No. 24-28 by The Philip Portwood Family Trust, on behalf of 29SC 8me LLC, for the cancellation of approximately 631 acres of a Land Use Contract (Recorded in Book 4640, Page 687)
- WALUCC v No. 24-33 by Starrh Ranch LLC, on behalf of 29SC 8me, for the cancellation of approximately 358 acres of a Land Use Contract (Recorded in Book 5008, Page 800)

Farmland Security Zone Contract Cancellations

- WALUCC No. 24-05 by Toretta LTD I, LP, on behalf of 29SC 8me LLC, for the cancellation of approximately 235 acres of a Farmland Security Zone Contract (Recorded Document Number 0214158124)

Public Access Easement Vacation

- A portion of County Road 136, per County Road Record No. 136 at Page 16, north of Sullivan Road as shown in **Figure 3-13 (A and B):** *Easement Vacation Site 1& 5.*

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Figures 3-4: (A–E): Circulation Element Amendments

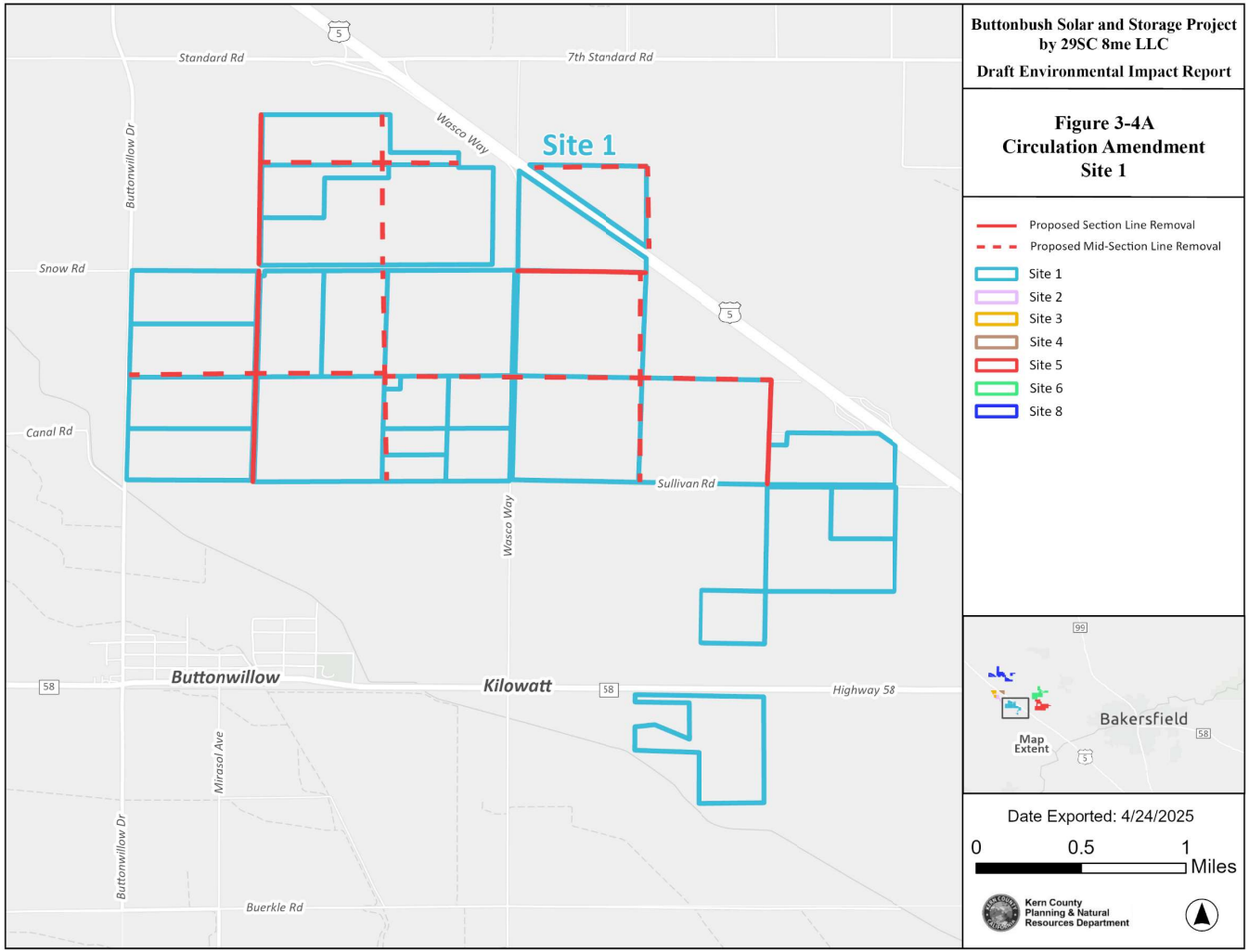


Figure 3-4: Circulation Element Amendments (B)

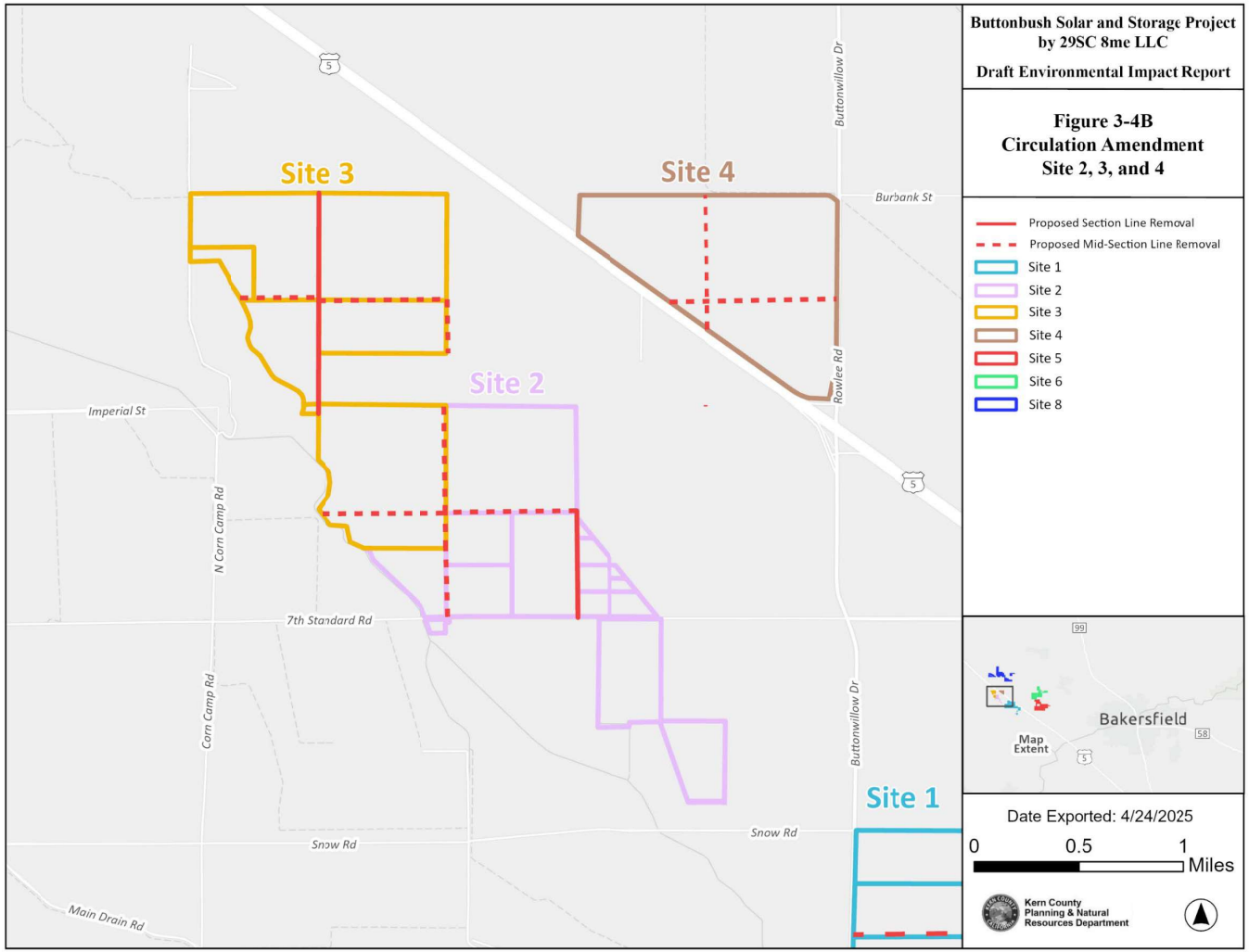


Figure 3-4: Circulation Element Amendments (C)

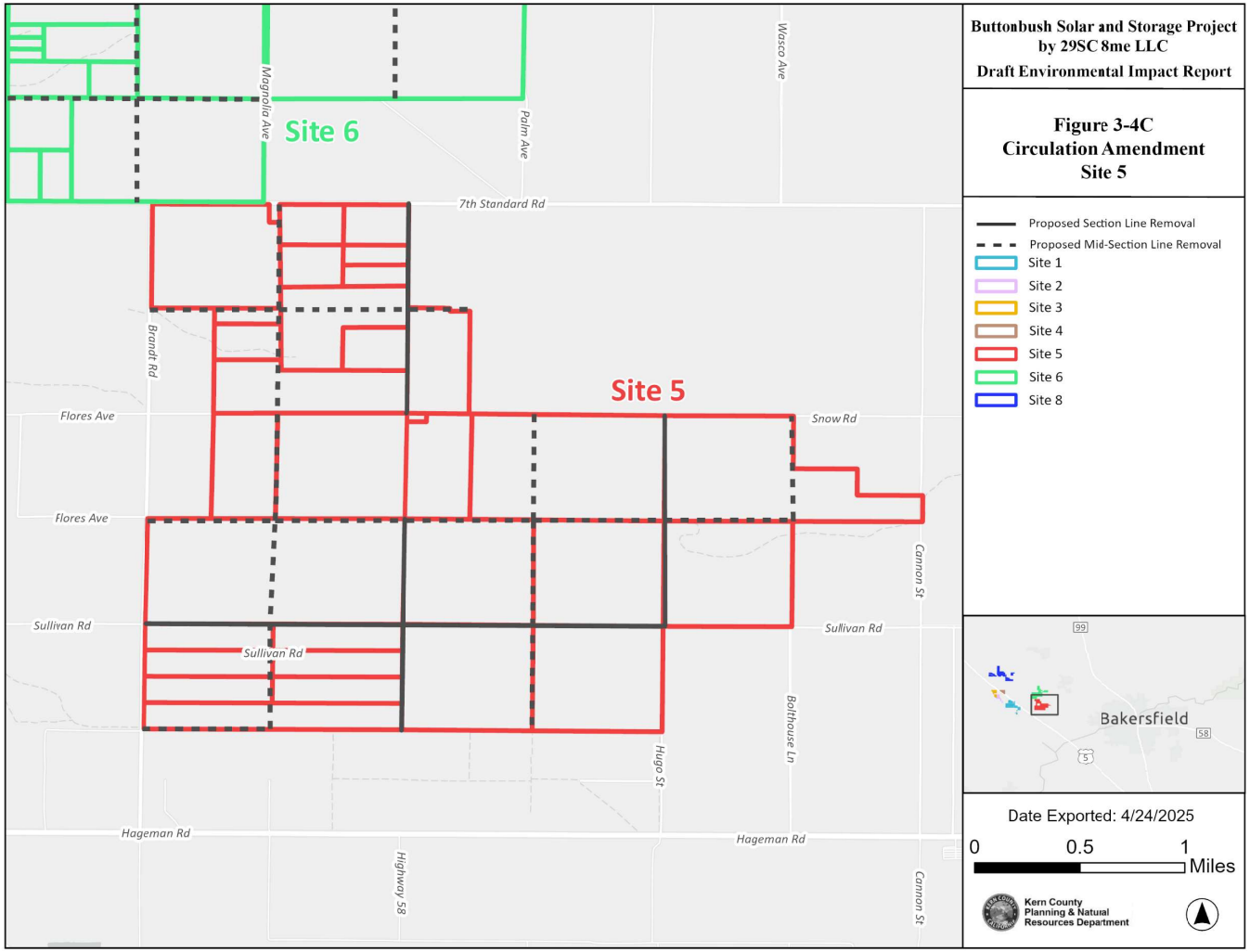


Figure 3-4: Circulation Element Amendments (D)

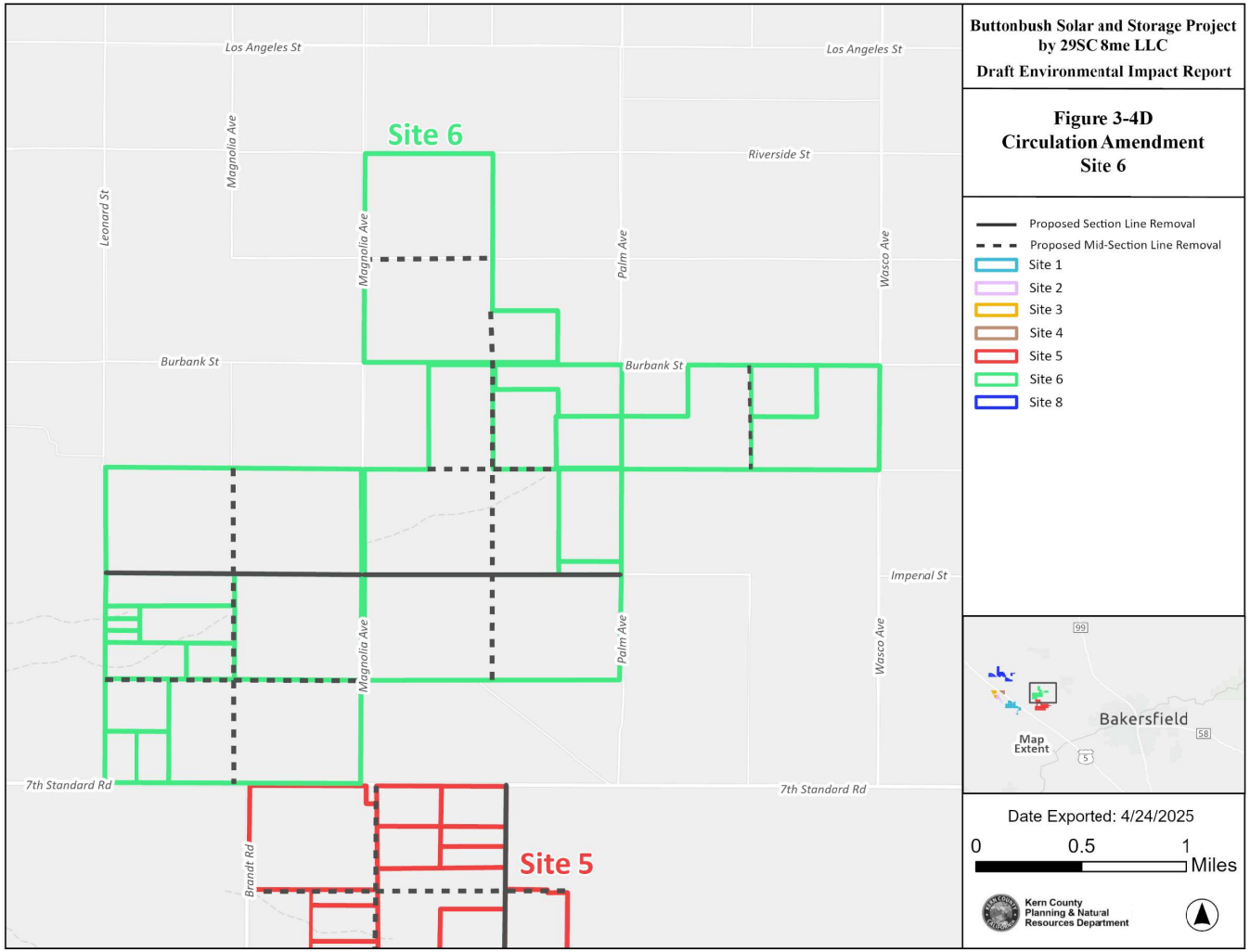
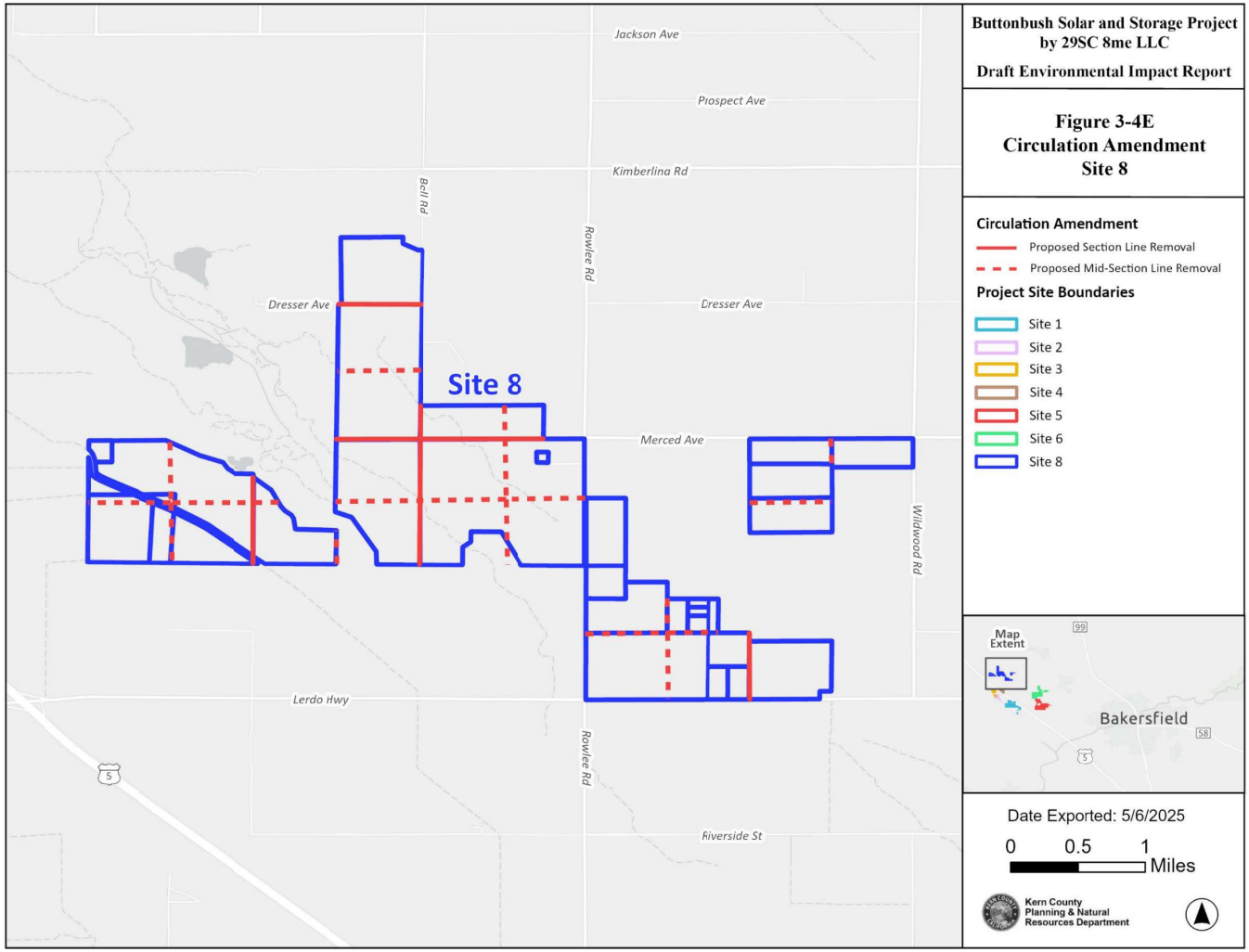


Figure 3-4: Circulation Element Amendments (E)



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Site 2

Conditional Use Permits

- CUP No. 14 Map 77 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 2 generating capacity of 93 MW, and approximately 1,600 MWh of energy storage, on approximately 412 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.
- CUP No. 20 Map 77 to allow for the construction and operation of a microwave tower on approximately 80 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.F of the Kern County Zoning Ordinance.
- CUP No. 18 Map 98 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 2 generating capacity of 93 MW, and approximately 1,600 MWh of energy storage, on approximately 132 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.

General Plan Amendment

- GPA No. 10, Map 77 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below and shown in **Figure 3-4B:** *Circulation Amendment Sites 2, 3, and 4*.
    - The south half of the Section line between Section 33, T28 S R23 E MDB&M and Section 34, T28 S R23 E MDB&M
    - The east half of the east-west mid-section line of Section 33, T28 S R23 E MDB&M
    - The east half of the north-south mid-section line of Section 33, T28 S R23 E MDB&M
    - A portion of the west half of the south half of the north-south mid-section line of Section 33, T28 S R23 E MDB&M

Williamson Act Land Use Contract Cancellations

- WALUCC 24-07 by Palla Alfred Jr & Janette Family Trust et al, on behalf of 29SC 8me LLC, for the cancellation of approximately 35 acres of a Land Use Contract (Recorded Document Number 0205320977)
- WALUCC 24-08 by Bittleston Allan & Lynda Revocable Trust, on behalf of 29SC 8me LLC, for the cancellation of approximately 128 acres of a Land Use Contract (Recorded Document Number 0210065031)
- WALUCC 24-26 by Louis Andreotti Jr, on behalf of 29SC 8me LLC, for the cancellation of approximately 80 acres of a Land Use Contract (Recorded in Book 4640, Page 637)
- WALUCC 24-34 by Bonnie & Davie Bloemhof LLC et al, on behalf of 29SC 8me LLC, for the cancellation of approximately 160 acres of a Land Use Contract (Recorded in Book 5737, Page 2231)

Site 3

Conditional Use Permit

- CUP No. 15 Map 77 to allow for the construction and operation of a commercial-scale solar facility with a Site 3 generating capacity of 108 MW on approximately 644 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.

General Plan Amendment

- GPA No. 11, Map 77 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below and shown in **Figure 3-4B:** *Circulation Amendment Sites 2, 3, and 4*.
    - A portion of the west half of the south half of the north-south mid-section line of Section 33, T 28S R23 E MDB&M
    - The west half of the north half of the north-south mid-section line of Section 33, T28 S R23 E MDB&M
    - The west half of the east-west mid-section line of Section 33, T28 S R23 E MDB&M
    - The Section line between Section 28, T28 S R23 E MDB&M and Section 29, T28 S R23E MDB&M
    - A portion of the east half of the east-west mid-section line of Section 29, T28 S R23 E MDB&M within the Project boundary
    - The west half of the east-west mid-section line of Section 28, T28 S R23 E MDB&M
    - A portion of the south half of the north-south mid-section line of Section 28, T28S R23 E MDB&M

Williamson Act Land Use Contract Cancellations

- WALUCC 24-22 by Fred Palla Farms Inc, on behalf of 29SC 8me LLC, for the cancellation of approximately 120 acres of a Land Use Contract (Recorded in Book 4372, Page 832)
- WALUCC 24-26 by Louis Andreotti Jr, on behalf of 29SC 8me LLC, for the cancellation of approximately 80 acres of a Land Use Contract (Recorded in Book 4640, Page 637)
- WALUCC 24-29 by Palla Alfred Jr. & Janette Family Trust et al, on behalf of 29SC 8me LLC, for the cancellation of approximately 195 acres of a Land Use Contract (Recorded in Book 4640, Page 849)
- WALUCC 24-30 by Houchin Wallace & Janice Family Trust, on behalf of 29SC 8me LLC, for the cancellation of approximately 160 acres of a Land Use Contract (Recorded in Book 4771, Page 47)
- WALUCC 24-32 by Sage Creek Ranch LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 89 acres of a Land Use Contract (Recorded in Book 4883, Page 396)

Site 4

Conditional Use Permit

- CUP No. 16 Map 77 to allow for the construction and operation of a commercial-scale solar facility with a Site 4 generating capacity of 38 MW on approximately 395 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.

General Plan Amendment

- GPA No. 12, Map 77 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below and shown in **Figure 3-4B:** *Circulation Amendment Sites 2,3, and 4*.
    - Portions of the mid-section lines of Section 27, T28 S R 23 E MDB&M within the Project boundary

Williamson Act Land Use Contract Cancellations

- WALUCC 24-25 by A J Parsons & Family LTD PTP, on behalf of 29SC 8me LLC, for the cancellation of approximately 395 acres of a Land Use Contract (Recorded in Book 4495, Page 483)

Site 5

Conditional Use Permits

- CUP No. 26 Map 99 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 5 generating capacity of 404 MW, and approximately 4,800 MWh of energy storage, on approximately 2,302 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.
- CUP No. 27 Map 99 to allow for the construction and operation of a microwave tower on approximately 153 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.F of the Kern County Zoning Ordinance.
- CUP No. 28 Map 99 to allow for the construction and operation of a microwave tower on approximately 318 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.F of the Kern County Zoning Ordinance.
- CUP No. 61 Map 100 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 5 generating capacity of 404 MW, and approximately 4,800 MWh of energy storage, on approximately 375 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.

General Plan Amendments

- GPA No. 10, Map 99 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below and shown in **Figure 3-4C:** *Circulation Amendment Site 5*.

  - The Section line between Section 1, T29 S R24E MDB&M and Section 2, T29 S R 24E MDB&M
  - A portion of the west half of the east-west mid-section line of Section 1, T 29 S R24 E MDB&M within the Project boundary
  - The mid-section lines of Section 2, T29 S R24 E MDB&M
  - The south half of the Section line between Section 11, T29 S R24 E MDB&M and Section 12, T29 S R24 E MDB&M
  - The mid-section lines of Section 11, T29 S R24E MDB&M
  - The mid-section lines of Section 12, T29 S R24 E MDB&M
  - The west half of the Section line between Section 12, T29 S R24 E MDB&M and Section 7, T29S R25 E MDB&M
  - The Section line between Section 11, T29 S R24 E MDB&M and Section 14, T29 S R24 E MDB&M
  - The north half of the north-south mid-section line of Section 14, T29 S R24 E MDB&M
  - The west half of the east-west mid-section line of Section 14, T29 R24 E MDB&M
  - The north half of the north-south mid-section line of Section 13, T29 S R24 E MDB&M
  - The Section line between Section 12, T29 S R24 E MDB&M and Section 13, T29 S R24 E MDB&M
- The north half of the Section line between Section 13, T29 S R24 E MDB&M and Section 14, T29 S R24 E MDB&MGPA No 31, Map 100 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below and shown in **Figure 3-4C:** *Circulation Amendment Site 5*.
  - The east half of the Section Line between Section 12, T29S R24 E MDB&M and Section 7, Township 29S R25 E MDB&M
  - The west half of the east-west mid-section line of Section 7, T29 S R25 E MDB&M
  - The north half of the north-south mid-section line of Section 7, T29 S R25 E MDB&M

Williamson Act Land Use Cancellations

- WALUCC 24-09 by Affentranger Farms LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 136 acres of a Land Use Contract (Recorded Document Number 0195144320)
- WALUCC 24-10 by 3&1 Farms Inc, on behalf of 29SC 8me LLC, for the cancellation of approximately 75 acres of a Land Use Contract (Recorded Document in Book 4165, Page 883)
- WALUCC 24-14 by Bushnell Jon R & Julia Bushnell Family Trust, on behalf of 29SC 8me LLC, for the cancellation of approximately 79 acres of a Land Use Contract (Recorded in Book 4249, Page 941)

- WALUCC 24-23 by Affentranger Farms LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 318 acres of a Land Use Contract (Recorded in Book 4491, Page 96)
- WALUCC 24-24 by Affentranger Ranches, on behalf of 29SC 8me LLC, for the cancellation of approximately 398 acres of a Land Use Contract (Recorded in Book 4493, Page 418)
- WALUCC 24-37 by Affentranger Farms LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 494 acres of a Land Use Contract (Recorded in Book 6085, Page 0877)
- WALUCC 24-38 by Affentranger Ranches, on behalf of 29SC 8me LLC, for the cancellation of approximately 617 acres of a Land Use Contract (Recorded in Book 6085, Page 0888)
- WALUCC 24-39 by Affentranger Ranches, on behalf of 29SC 8me LLC, for the cancellation of approximately 320 acres of a Land Use Contract (Recorded in Book 6085, Page 0897)
- WALUCC 24-40 by Affentranger Brothers, on behalf of 29SC 8me LLC, for the cancellation of approximately 241 acres of a Land Use Contract (Recorded in Book 6992, Page 1078)

Public Access Easement Vacation

- Portions of public access easements created by Parcel Map 1201 as shown in **Figure 3-13 (A and B):** *Easement Vacation Site 1& 5.*

Site 6

Conditional Use Permit

- CUP No. 17 Map 78 to allow for the construction and operation of a colercial-scale solar facility with a Site 6 generating capacity of 453 MW, and approximately 4,800 MWh of energy storage, on approximately 2,409 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.

General Plan Amendment

- GPA No 10, Map 78 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below and shown in **Figure 3-4D:** *Circulation Amendment Site 6*.
    - The west half of the east-west mid-section line of Section 23, T28 S R24 E MDB&M
    - A portion of the south half of the north-south midsection line of Section 23, T28 S R24 E MDB&M within the Project boundary
    - The north half of the north-south mid-section line of Section 25, T28 S R24 E MDB&M
    - The north-south midsection line of Section 26, T28 S R24 E MDB&M
    - A portion of the east-west midsection line of Section 26, T28 S R24 E MDB&M within the Project boundary

- The south half of the north-south mid-section line of Section 27, T28 S R24 E MDB&M
- The Section line between Section 27, T28 S R24 E MDB&M and Section 34, T28 S R24 E MDB&M
- The mid-section lines of Section 34, T28 S R24 E MDB&M
- The north half of the north-south mid-section line of Section 35, T28 S R24 E MDB&M
- The Section line between Section 26, T28 S R24 E MDB&M and Section 35, T28 S R24 E MDB&M

Williamson Act Land Use Cancellations

- WALUCC 24-02 by Sill Properties Inc, on behalf of 29SC 8me LLC, for the cancellation of approximately 635 acres of a Land Use Contract (Recorded Document Number 218162800)
- WALUCC 24-17 by Sill Properties Inc, on behalf of 29SC 8me LLC, for the cancellation of approximately 39 acres of a Land Use Contract (Recorded in Book 4272, Page 884)
- WALUCC 24-20 by Tjaarda Ranches LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 318 acres of a Land Use Contract (Recorded in Book 4371, Page 254)
- WALUCC 24-21 by Ohanneson Section 23 Farmland, LLC, on behalf of 29SC 8me LLC, for the cancellation of approximately 352 acres of a Land Use Contract (Recorded in Book 4371, Page 367)
- WALUCC 24-31 by Sill Properties Inc, on behalf of 29SC 8me LLC, for the cancellation of approximately 297 acres of a Land Use Contract (Recorded in Book 4827, Page 1330)

Site 8

Conditional Use Permits

- CUP No. 12 Map 54 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 8 generating capacity of 463 MW, and approximately 800 MWh of energy storage, on approximately 589 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.
- CUP No. 17 Map 77 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 8 generating capacity of 463 MW, and approximately 800 MWh of energy storage, on approximately 2,436 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance.
- CUP No. 18 Map 77 to allow for the construction and operation of a microwave tower on approximately 235 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.F of the Kern County Zoning Ordinance.
- CUP No. 19 Map 77 to allow for the construction and operation of a microwave tower on approximately 543 acres within the A (Exclusive Agriculture) District pursuant to Section 19.12.030.F of the Kern County Zoning Ordinance.

General Plan Amendments

- GPA No. 1, Map 54 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below and shown in **Figure 3-4E:** *Circulation Amendment Site 8*.
    - The east half of the Section line between Section 28, T27 S R23 E MDB&M and Section 33, T27 S R23 E MDB&M
    - The east half of the east-west mid-section line of Section 33, T27 S R23 E MDB&M
    - A portion of the Section line between Section 33, T27 S R23 E MDB&M and Section 34, T23 S R23 E MDB&M
    - The north half of the east half of the Section line between Section 33, T27 S R23 E MDB&M and Section 4, T28 S R23 E MDB&M
    - The north half of the portion of the Section line between Section 34, T27 S R23 E MDB&M and Section 3, T28 S R23 E MDB&M within the Project boundary
    - A portion of the north-south mid-section line of Section 34, T27 S R23 E MDB&M within the Project boundary

- GPA No. 13, Map 77 to the Circulation Element of the Kern County General Plan to remove future road reservations on the section and mid-section lines as described below and shown in **Figure 3-4E:** *Circulation Amendment Site 8*
    - A portion of the north-south mid-section line of Section 1, T28 S R23 E MDB&M within the Project boundary
    - The west half of the east-west mid-section line of Section 1, T28 S R23 E MDB&M
    - The south half of the Section line between Section 34, T27 S R23 E and Section 3, T28 S R23 E within the Project boundary
    - The mid-section lines of Section 3, T28 S R23 E MDB&M
    - The south half of the east half of the Section line between Section 33, T27 S R23 E MDB&M and Section 4, T28 S R23 E MDB&M
    - The Section line between Section 3, T28 S R23 E MDB&M and Section 4 T28 S R23 E MDB&M
    - A portion of the east half of the east-west mid-section line of Section 4, T28 S R23 E MDB&M within the Project boundary
    - A portion of the west half of the east-west mid-section line of Section 4, T28 S R23 E MDB&M within the Project boundary
    - A portion of the north-south mid-section line of Section 4, T28 S R23 E MDB&M within the Project boundary
    - A portion of the Section line between Section 4, T28 S R23 E MDB&M and Section 5, T28 S R23 E MDB&M
    - The midsection lines of Section 5, T28 S R 23 E MDB&M

- A portion of the Section line between Section 11, T28S R23 E MDB&M and Section 12, T28 S R23 E MDB&M within the Project boundary
- A portion of the north-south mid-section line of Section 11, T28 S R23 E MDB&M within the Project boundary
- A portion of the east-west mid-section line of Section 11, T28S R23 E MDB&M within the Project boundary

Williamson Act Land Use Contract Cancellations

- WALUCC 24-11 by Gooselake Holding Co, on behalf of 29SC 8me LLC, for the cancellation of approximately 543 acres of a Land Use Contract (Recorded in Book 4247, Page 680)
- WALUCC 24-12 by Gooselake Holding Co, on behalf of 29SC 8me LLC, for the cancellation of approximately 885 acres of a Land Use Contract (Recorded in Book 4247, Page 783)
- WALUCC 24-13 by Gooselake Holding Co, on behalf of 29SC 8me LLC, for the cancellation of approximately 435 acres of a Land Use Contract (Recorded in Book 4248, Page 434)
- WALUCC 24-15 by Tracy Ranch Inc, on behalf of 29SC 8me LLC, for the cancellation of approximately 374 acres of a Land Use Contract (Recorded in Book 4251, Page 457)
- WALUCC 24-16 by Tracy Ranch Inc, on behalf of 29SC 8me LLC, for the cancellation of approximately 45 acres of a Land Use Contract (Recorded in Book 4251, Page 529)
- WALUCC 24-19 by B&E Romanini Investments LP and Romanini Family LP and Romanini Family LP, on behalf of 29SC 8me LLC, for the cancellation of approximately 287 acres of a Land Use Contract (Recorded in Book 4370, Page 306)
- WALUCC 24-35 by Tracy Ranch Inc, on behalf of 29SC 8me LLC, for the cancellation of approximately 206 acres of a Land Use Contract (Recorded in Book 5845, Page 1410)
- WALUCC 24-36 by Gooselake Holding Co, on behalf of 29SC 8me LLC, for the cancellation of approximately 83 acres of a Land Use Contract (Recorded in Book 5845, Page 1419)

Table 3-2: *Project Assessor Parcel Number, Existing Map Codes, Existing Zoning, Williamson Act Status, and Project Parcel Acreage by Site*, below, identifies the individual parcels and corresponding site number, their respective APNs, project acreages, and existing general plan and zoning designations, as described in further detail below in **Section 3.3**, *Environmental Setting*. **Figures 3-2 (A–F):** *Project Site Boundaries* [*Site 1, Site 2,3, and 4, Site 5, Site 6, Site 8*], above, identify the locations of these APNs and their corresponding sites. **Figures 3-5 (A–E):** *Existing General Plan Land Use Designations* [*Site 1, Sites 2, 3, and 4, Site 5, Site 6, Site 8*], below, identify the existing General and Specific Plan land use designations.

Table 3-2: Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, Williamson Act Status, and Project Parcel Acreage by Site

APN	Zone Map	Existing Map Code Designation	Existing Zoning	Williamson Act Status	Project Parcel Acreage
Site 1					
100-010-13	98	8.1/8.4	A	Active	224*
100-010-14	98	8.1	A	Active	50
100-010-22	98	8.1	A	Active	85*
100-100-03	98	8.1/8.4	A	Active	158
100-100-04	98	4.1 (Exclusive Agriculture)	A	N/A	3
100-100-05	98	4.1 (Exclusive Agriculture)	A	Active	38
100-100-06	98	4.1 (Exclusive Agriculture)	A	Active	39
100-100-07	98	4.1 (Exclusive Agriculture)	A	Active	39
100-100-08	98	4.1 (Exclusive Agriculture)	A	Active	20
100-100-09	98	4.1 (Exclusive Agriculture)	A	Active	20
100-100-10	98	4.1 (Exclusive Agriculture)	A	Active	158
100-100-19	98	8.1	A	Active	78
100-100-26	98	8.1	A	Active	78*
100-100-27	98	4.1 (Exclusive Agriculture)	A	Active	76
100-100-29	98	4.1 (Exclusive Agriculture)	A	Active	78*
100-100-31	98	8.1	A	Active	78
100-100-32	98	8.1	A	Active	80
				Subtotal Site 1, Zone Map 98:	**1,300**
103-030-45	99	8.1	A	Active	55
103-030-46	99	8.1/8.4	A	Active	87
103-040-02	99	8.1	A	Active	156
103-040-08	99	8.1/8.4	A	N/A	74*
103-040-14	99	8.1/8.4	A	Active	159
103-040-24	99	8.1/8.4	A	Active	158
103-100-01	99	8.1/8.4	A	Active	119
103-100-02	99	8.1/8.4	A	Active	39
103-100-23	99	8.1	A	N/A	40*
103-120-30	99	8.5	A	N/A	103
				Subtotal Site 1, Zone Map 99:	**989**

Table 3-2: Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, Williamson Act Status, and Project Parcel Acreage by Site

APN	Zone Map	Existing Map Code Designation	Existing Zoning	Williamson Act Status	Project Parcel Acreage
				Subtotal Site 1:	**2,289**
Site 2					
087-200-02	77	8.1	A	Active	160
087-200-03	77	8.1	A	N/A	80
087-200-05	77	8.1	A	Active	41
087-200-16	77	8.1	A	Active	2*
087-200-28	77	8.1	A	Active	3*
087-200-29	77	8.1	A	Active	10
087-200-30	77	8.1	A	N/A	10
087-200-31	77	8.1	A	Active	8*
087-200-37	77	8.1	A	N/A	47
087-200-39	77	8.1	A	Active	40
087-200-54	77	8.1	A	Active	12*
				Subtotal Site 2, Zone Map 77:	**412**
100-020-19	98	8.5	A	Active	128*
100-030-08	98	8.1	A	N/A	4
				Subtotal Site 2, Zone Map 98:	**132**
				Subtotal Site 2:	**543**
Site 3					
087-160-01	77	8.1	A	Active	160
087-160-19	77	8.1	A	Active	80
087-170-04	77	8.1	A	Active	67*
087-170-12	77	8.1	A	Active	120
087-170-13	77	8.1	A	Active	20*
087-200-35	77	8.1	A	Active	195
087-210-10	77	8.1	A	Active	2*
				Subtotal Site 3:	**644**

Table 3-2: Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, Williamson Act Status, and Project Parcel Acreage by Site

APN	Zone Map	Existing Map Code Designation	Existing Zoning	Williamson Act Status	Project Parcel Acreage
Site 4					
087-160-53	77	8.1	A	Active	395
				Subtotal Site 4:	**395**
Site 5					
103-010-18	99	8.1	A	Active	31
103-010-19	99	8.1	A	Active	32
103-010-20	99	8.1	A	Active	31
103-010-21	99	8.1	A	Active	16
103-010-25	99	8.1	A	Active	104
103-010-28	99	8.1	A	Active	153
103-010-30	99	8.1	A	Active	16
103-010-31	99	8.1	A	Active	32
103-010-32	99	8.1	A	Active	94
103-010-39	99	8.1	A	Active	13*
103-010-40	99	8.1	A	Active	27*
103-010-43	99	8.1	A	Active	75*
103-060-04	99	8.1	A	Active	79*
103-060-05	99	8.1	A	Active	318
103-060-08	99	8.1	A	Active	78
103-060-09	99	8.1	A	Active	2
103-060-10	99	8.1	A	Active	240
103-060-11	99	8.1	A	Active	160
103-060-12	99	8.1	A	Active	160
103-070-07	99	8.1	A	Active	160
103-070-08	99	8.1	A	Active	160
103-070-13	99	8.1	A	Active	40
103-070-14	99	8.1	A	Active	40
103-070-15	99	8.1	A	Active	40

Table 3-2: Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, Williamson Act Status, and Project Parcel Acreage by Site

APN	Zone Map	Existing Map Code Designation	Existing Zoning	Williamson Act Status	Project Parcel Acreage
103-070-16	99	8.1	A	Active	40
103-070-17	99	8.1	A	Active	40
103-070-18	99	8.1	A	Active	40
103-070-19	99	8.1	A	Active	80
				Subtotal Site 5, Zone Map 99:	**2,302**
104-050-01	100	8.1	A	Active	217
104-050-08	100	8.1	A	Active	158
				Subtotal Site 5, Zone Map 100:	**375**
				Subtotal Site 5:	**2,677**
Site 6					
088-150-01	78	8.1	A	Active	352*
088-180-02	78	8.1	A	Active	317
088-180-04	78	8.1	A	N/A	58
088-180-06	78	8.3	A	N/A	70
088-180-07	78	8.3	A	N/A	10
088-180-10	78	8.1	A	Active	119
088-180-11	78	8.1	A	Active	39
088-180-12	78	8.1	A	Active	117
088-180-34	78	8.1	A	Active	61
088-190-20	78	8.1	A	Active	318
088-210-01	78	8.1	A	Active	318
088-220-15	78	8.1	A	N/A	50
088-220-16	78	8.3	A	N/A	158
088-220-17	78	8.1	A	N/A	235
088-220-19	78	8.1	A	N/A	40
088-220-20	78	8.1	A	N/A	35
088-220-21	78	8.1	A	N/A	20
088-220-22	78	8.1	A	N/A	40

Table 3-2: Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, Williamson Act Status, and Project Parcel Acreage by Site

APN	Zone Map	Existing Map Code Designation	Existing Zoning	Williamson Act Status	Project Parcel Acreage
088-220-23	78	8.1	A	N/A	5
088-220-24	78	8.1	A	N/A	5
088-220-25	78	8.1	A	N/A	5
088-220-31	78	8.1	A	N/A	20
088-220-32	78	8.1	A	N/A	17
				Subtotal Site 6:	**2,409**
Site 8					
069-340-28	54	8.1/2.3	A	Active	120
069-350-07	54	8.1/2.3	A	N/A	154*
069-350-09	54	8.1/2.3	A	Active	315*
				Subtotal Site 8, Zone Map 54:	**589**
087-010-11	77	8.1/(8.1/2.3)	A	Active	78
087-010-18	77	8.1	A	Active	60
087-010-20	77	8.1	A	Active	80
087-010-22	77	8.1	A	Active	66
087-020-01	77	8.1	A	Active	80
087-040-01	77	8.1/2.3	A	Active	374*
087-040-04	77	8.1/2.3	A	N/A	3
087-040-07	77	8.1/(8.1/2.3)	A	Active	543*
087-050-18	77	(8.1/2.3)/8.4	A	Active	118
087-050-28	77	8.1/2.3	A	Active	11
087-050-29	77	8.1/(8.1/2.3)	A	Active	345*
087-050-38	77	8.1/(8.1/2.3)	A	Active	37
087-060-01	77	8.5	A	Active	39
087-060-05	77	8.1	A	Active	20
087-060-06	77	8.1	A	Active	5
087-060-07	77	8.1	A	Active	5
087-060-08	77	8.1	A	Active	10
087-060-09	77	8.1	A	N/A	10
087-060-11	77	8.1	A	Active	40
087-060-12	77	8.1	A	Active	20
087-060-13	77	8.1	A	Active	20

Table 3-2: Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, Williamson Act Status, and Project Parcel Acreage by Site

APN	Zone Map	Existing Map Code Designation	Existing Zoning	Williamson Act Status	Project Parcel Acreage
087-060-14	77	8.1/8.5	A	Active	235
087-060-15	77	8.5	A	Active	99
087-060-39	77	8.1	A	Active	136
				Subtotal Site 8, Zone Map 77:	**2,436**
				Subtotal Site 8:	**3,025**
				PROJECT TOTAL ACREAGE:	**11,983**

Notes:

*Only a portion of parcel would be developed

Map Code Designations: 2.3 - Shallow Groundwater; 4.1 - Accepted Community Plan Areas (Buttonwillow Community Development Plan); 8.1, Intensive Agriculture (Min. 20-Acre Parcel Size); 8.3 - Extensive Agriculture (Min. 5-Acre Parcel Size); 8.4 - Mineral and Petroleum (Min. 5-Acre Parcel Size); 8.5 - Resource Management (Min. 20- or 80- Acre Parcel Size)

Zoning Classification: A (Exclusive Agriculture)

3.4 Applicant Submitted Project Objectives

The CEQA Guidelines Section 15124(b) requires that a proposed project description includes a clearly written statement of objectives. The statement of objectives should include the underlying purpose of the proposed project and may discuss the proposed project benefits. The following objectives have been identified for the proposed Project:

- Provide the State of California with a renewable energy source that would assist the State in complying with the Renewables Portfolio Standard (RPS) under Senate Bill 350 (2015), which requires that 50% of all electricity sold in the state to be generated from renewable energy sources by December 31, 2030. Senate Bill 100 was approved in September 2018 and would increase the Renewables Portfolio Standard to a 100% goal by 2045.
- Establish a large-scale solar PV and battery energy storage facility in a manner that maximizes the production of reliable electricity in an economically feasible and commercially financeable manner that can be marketed to different power utility companies or other off-takers of energy.
- Expand the reach of renewable energy development through the development of battery energy storage systems (BESS), making solar more valuable by storing energy after sunset and placing it on the grid when demand peaks.
- Provide energy to the electric grid to meet increasing demand for in-state generation.
- Provide revenues that help support public services within Kern County.
- Assist the County in continuing the goal in the Energy Element of its General Plan to develop large-scale solar energy development as a major energy source in the County.
- Promote economic development and bring jobs to the region throughout the life of the proposed Project.
- Support California's efforts to reduce greenhouse gas (GHG) emissions consistent with the timeline established in 2006 under California Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, which requires the California Air Resources Board to reduce statewide emissions of GHGs to at least the 1990 emissions level by 2020. This timeline was updated in 2016 under Senate Bill (SB) 32, which requires that statewide GHG emissions be reduced to at least 40 percent below the statewide GHG emissions limit by 2030.
- Support California's aggressive Renewables Portfolio Standards (RPS) Program consistent with the timeline established by SB 100 (De León, also known as the "California Renewables Portfolio Standard Program: emissions of greenhouse gases") as approved by the California Legislature and signed by Governor Brown in September 2018, which established a 50 percent RPS goal by December 31, 2026, 60 percent by December 31, 2030, and a goal that 100 percent of electric retail sales to end-use customers be provided by renewable energy and zero-carbon resources by 2045.
- Utilize historically farmed lands that would otherwise be fallowed due to significant water shortages, thereby providing local farmers an alternative to the economic losses associated with limiting their production.

3.5 Environmental Setting

3.5.1 Regional Setting

The Project site is located in the southern portion of the San Joaquin Valley in the valley region of Kern County, specifically in proximity to I-5, Highway 58, and Highway 46. The Project site is located primarily on flat terrain, currently either used for agricultural operations and/or vacant undisturbed land designated for agricultural use.

3.5.2 Land Use and Zoning

The Project site is subject to the Kern County General Plan (KCGP) with a relatively small portion located within the boundaries of the area that is subject to the Buttonwillow Community Development Plan (Specific Plan). The entire proposed Project is subject to the provisions of the Kern County Zoning Ordinance.

Kern County General Plan Land Use Designations

The proposed Project does not include an amendment to the County's General Plan Land Use Element, given that the 8.1 (Intensive Agriculture) base land use designation is compatible with the Project site's A (Exclusive Agriculture) zone classification. However, an amendment to the KCGP Circulation Element is necessary for the removal of future road reservations within project boundaries, as shown above in **Figure 3-4 A–E:** *Circulation Amendment* [*Site 1, Sites 2,3, and 4, Site 5, Site 6, and Site 8*]. As shown in **Figures 3-5 A–E:** *Existing General Plan Land Use Designations* [*Site 1, Sites 2, 3, and 4, Site 5, Site 6, Site 8*], and **Table 3-3:** *Existing Project Site and Surrounding Existing Land Use, General Plan Map Code Designations, and Zoning,* the Project site has the following General Plan land use designations as follows:

- 4.1 Special Treatment Areas (Accepted County Plan Areas)
- 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size)
- 8.1/2.3; 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size/Shallow Groundwater)
- 8.3 (Extensive Agriculture, Min. 20-Acre Parcel Size)
- 8.4 (Mineral and Petroleum, Min. 5-Acre Parcel Size)
- 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size)

According to the Kern County General Plan, the 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size) land use designation applies to areas devoted to the production of irrigated crops or having a potential for such use, typically involving large amounts of land with relatively low value-per-acre yields. Typical uses include irrigated cropland; orchards; vineyards; horse ranches; growing nursery stock ornamental flowers and Christmas trees; fish farms; beekeeping; ranch and farm facilities and related uses; one single-family dwelling unit; cattle feed yards; dairies; dry land farming; livestock grazing; water storage; groundwater recharge areas; mineral, aggregate, and petroleum exploration and extraction; hunting clubs; wildlife preserves; farm labor housing; public utility areas; and agricultural industries. The minimum allowable parcel size in the Extensive Agriculture category is 20 gross acres.

The 8.3 (Extensive Agriculture) land use designation applies to areas devoted to agricultural uses involving large amounts of land with relatively low value-per-acre yields, such as livestock grazing, dry land farming, and woodlands. Typical uses include livestock grazing; dry land farming; ranching facilities; wildlife and botanical preserves; and timber harvesting; one single-family dwelling unit; irrigated croplands; water storage or groundwater recharge areas; mineral, aggregate, and petroleum exploration and extraction; recreational activities, such as gun clubs and guest ranches; and land within development areas subject to significant physical constraints. The minimum allowable parcel size is 20 acres, except lands that are subject to a Williamson Act Contract or Farmland Security Zone Contract have a minimum of 80 acres.

The 8.4 (Mineral and Petroleum) land use designation applies to areas which contain producing or potentially productive petroleum fields, natural gas, and geothermal resources, and mineral deposits of regional and Statewide significance. Uses are limited to activities directly associated with resource extraction. The minimum parcel size in these areas are five acres.

The 8.5 (Resource Management) land use designation applies to areas of open space lands containing important resource values such as wildlife habitat, scenic values, or watershed recharge areas. These areas may be characterized by physical constraints or may constitute an important watershed recharge area or wildlife habitat or may have value as a buffer between resource areas and urban areas. Other lands with this resource attribute are undeveloped, non-urban areas that do not warrant additional planning within the foreseeable future because of current population (or anticipated increase), marginal physical development, or no subdivision activity. Similar to Extensive Agriculture land, the minimum allowable parcel size is 20 acres, except lands that are subject to a Williamson Act Contract or Farmland Security Zone Contract have a minimum allowable parcel size of 80 acres.

The 2.3 (Shallow Groundwater) land use designation are areas with groundwater within 15 feet of the land surface. These areas are delineated on the Kern County Seismic Hazard Atlas.

Buttonwillow Community Development Plan (Specific Plan)

A relatively small portion of the southern section of the proposed Project (Site 1) lies within the administrative boundaries of the Buttonwillow Community Development Plan (Specific Plan). The Specific Plan was adopted in 1974. Its goals, policies, and standards are compatible with those of the General Plan and are tailored to the particular needs of the development of the Buttonwillow area. The purpose of the Specific Plan is to ensure the orderly development of Buttonwillow as an agriculture service center. As shown in **Table 3-3:** *Existing Project Site and Surrounding Existing Land Use, General Plan Map Code Designations, and Zoning*, and **Figures 3-5A:** *Existing General Plan Land Use Designations Site 1*, the Project site has the Specific Plan land use designation of Exclusive Agriculture.

The proposed Project includes an amendment to the Circulation Element of the Specific Plan to remove future road reservations on the section and mid-section lines within the proposed Project boundaries subject to the Specific Plan.

Figures 3-5: (A–E): Existing General Plan Land Use Designations

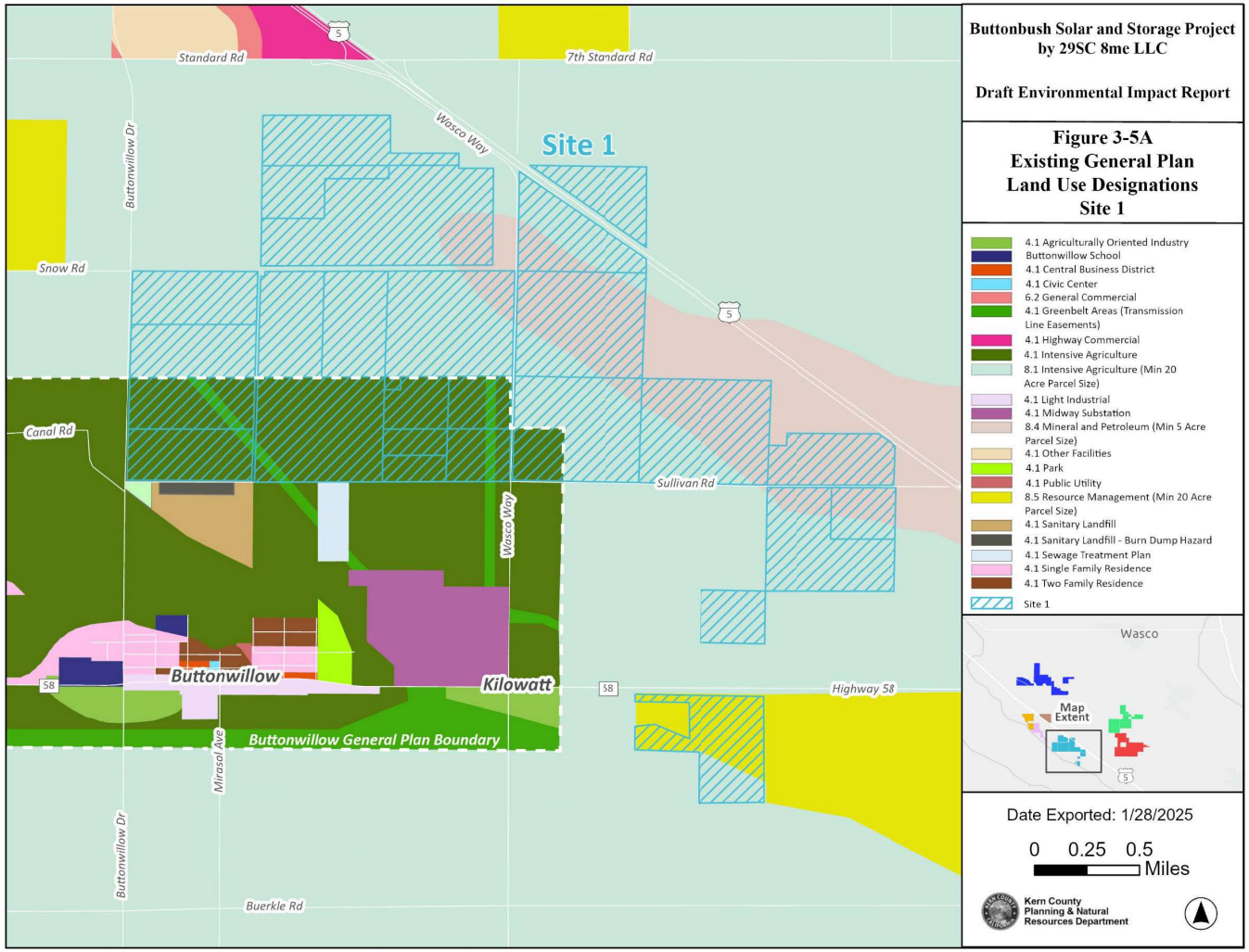


Figure 3-5: Existing General Plan Land Use Designations (B)

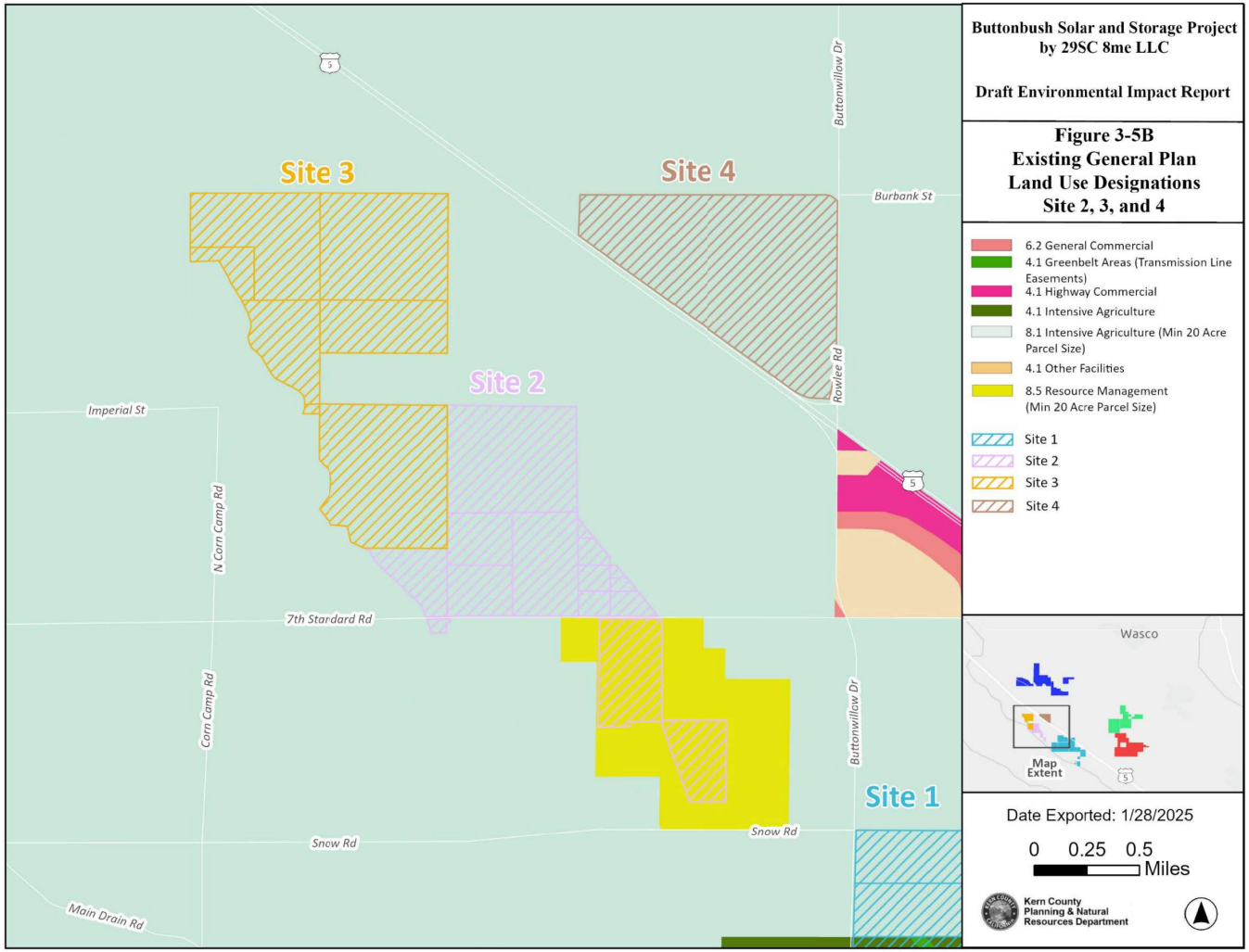


Figure 3-5: Existing General Plan Land Use Designations (C)

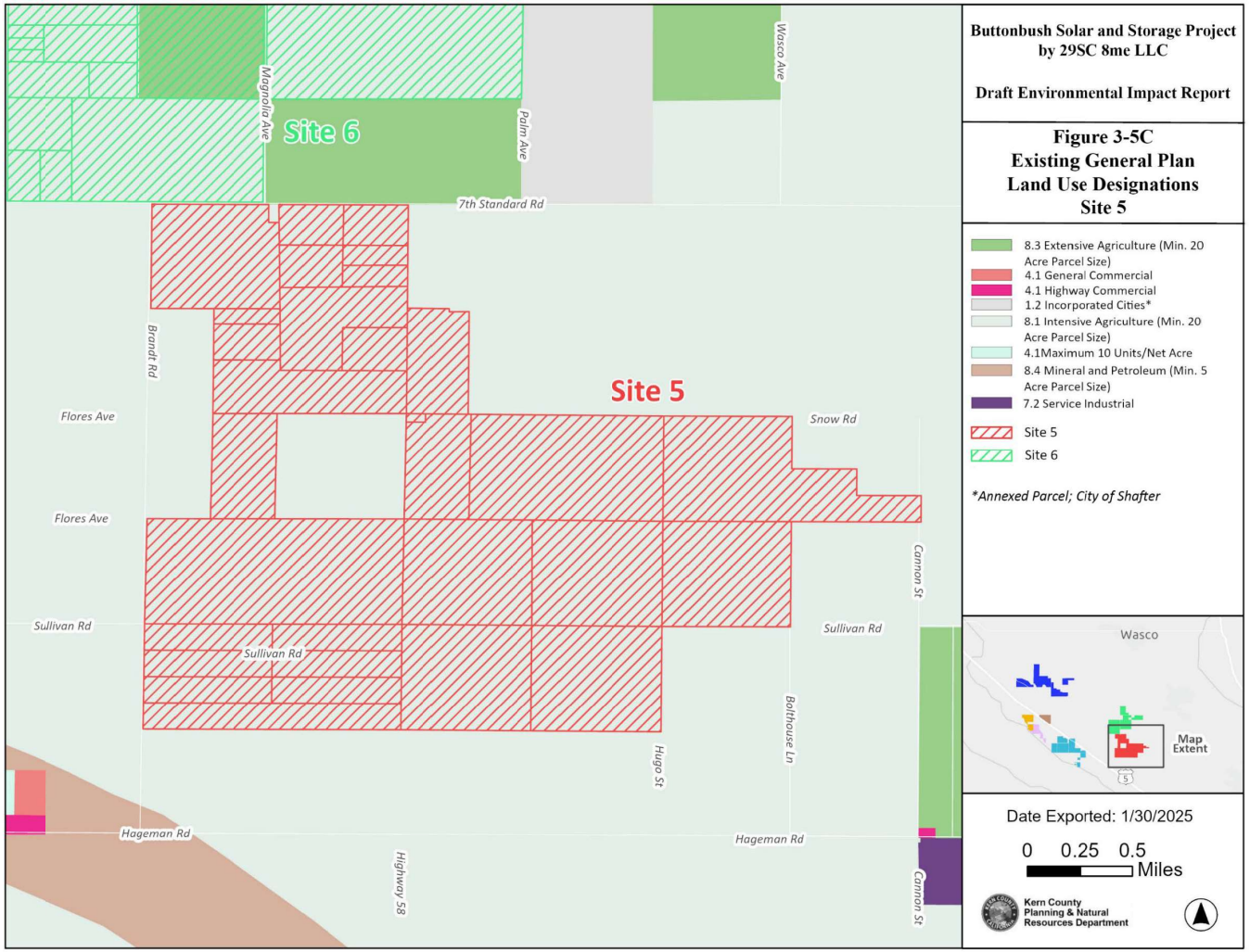


Figure 3-5: Existing General Plan Land Use Designations (D)

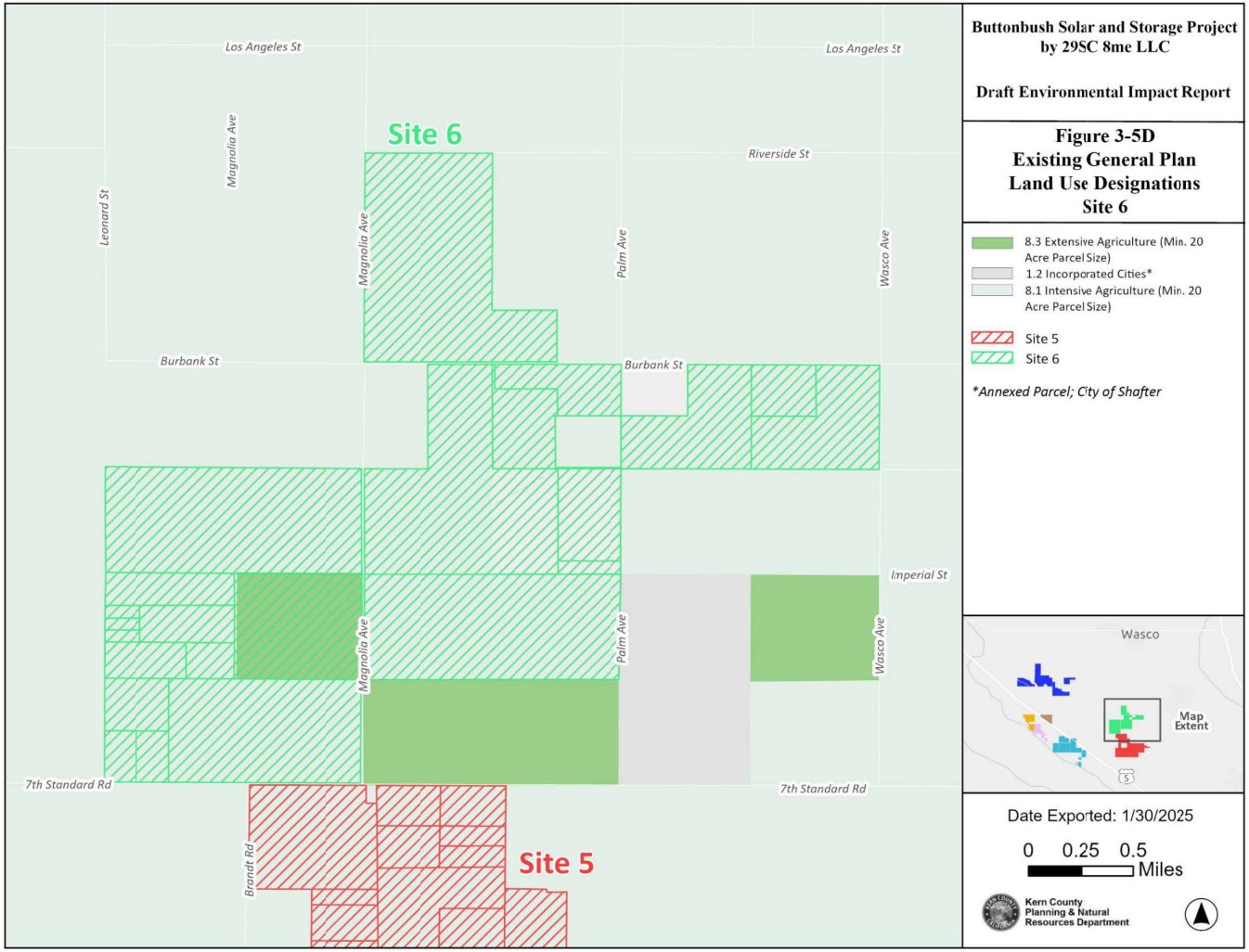
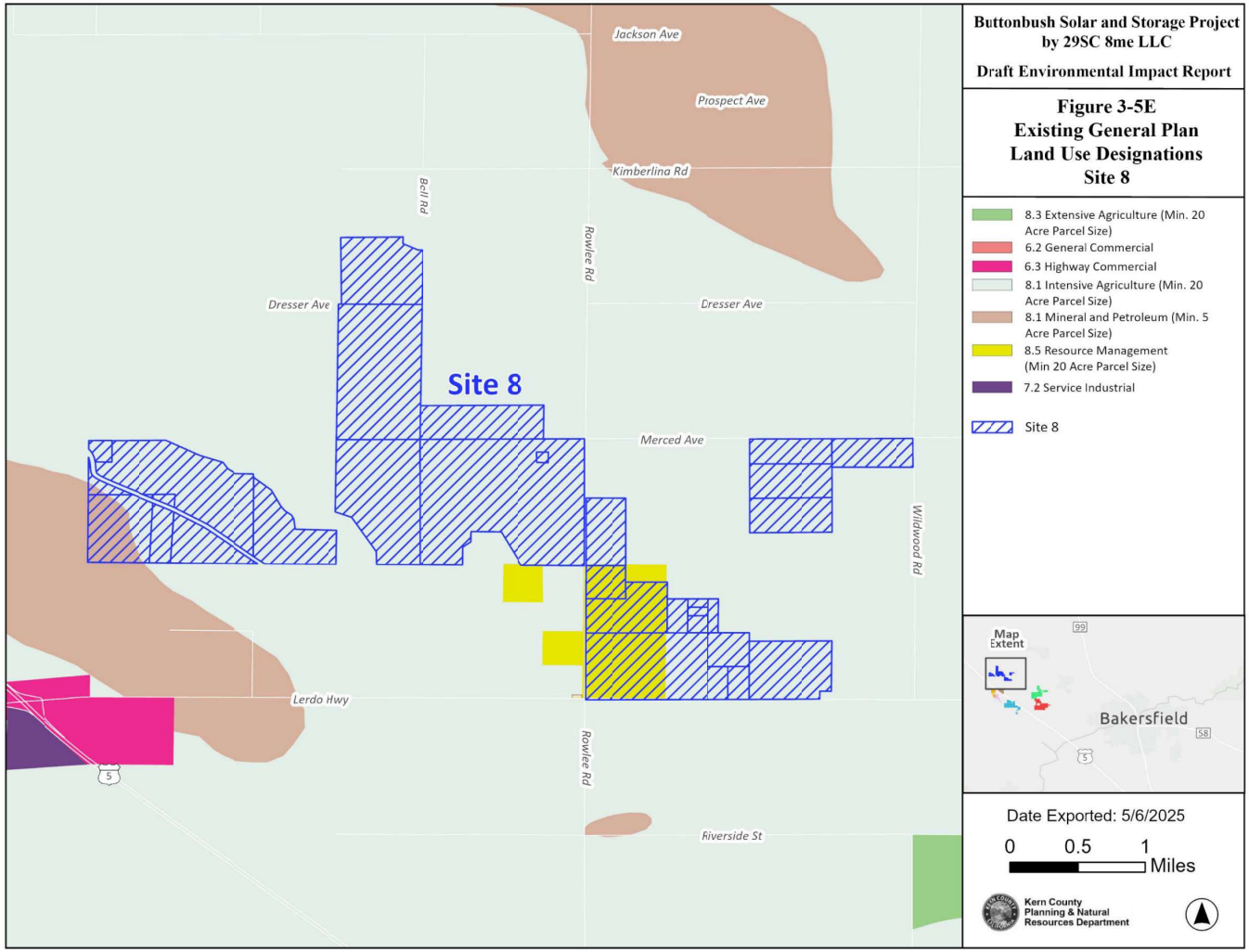


Figure 3-5: Existing General Plan Land Use Designations (E)



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Zoning Classification

The zoning classifications are defined in Title 19 of the Zoning Ordinance of Kern County. As shown in **Table 3-3:** *Existing Project Site and Surrounding Existing Land Use, General Plan Map Code Designations, and Zoning*, and **Figures 3-6A–E:** *Existing Zoning Designations* [*Site 1, Sites 2, 3, 4, Site 5, Site 6, Site 8*], the Kern County Zoning Ordinance designates the Project site as Exclusive Agriculture (A) under the County's Zoning Classification.

The purpose of the A District is to designate areas suitable for agricultural uses and to prevent the encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to nonagricultural uses. Uses in the A District are limited primarily to agricultural uses and other activities compatible with agricultural uses. According to Kern County Zoning Ordinance Section 19.12.030 G, solar energy electrical generators, when not accessory to a permitted or conditionally permitted use, are permitted within the A Zone District subject to the approval of a CUP.

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Figures 3-6 (A–E): Existing Zoning Designations

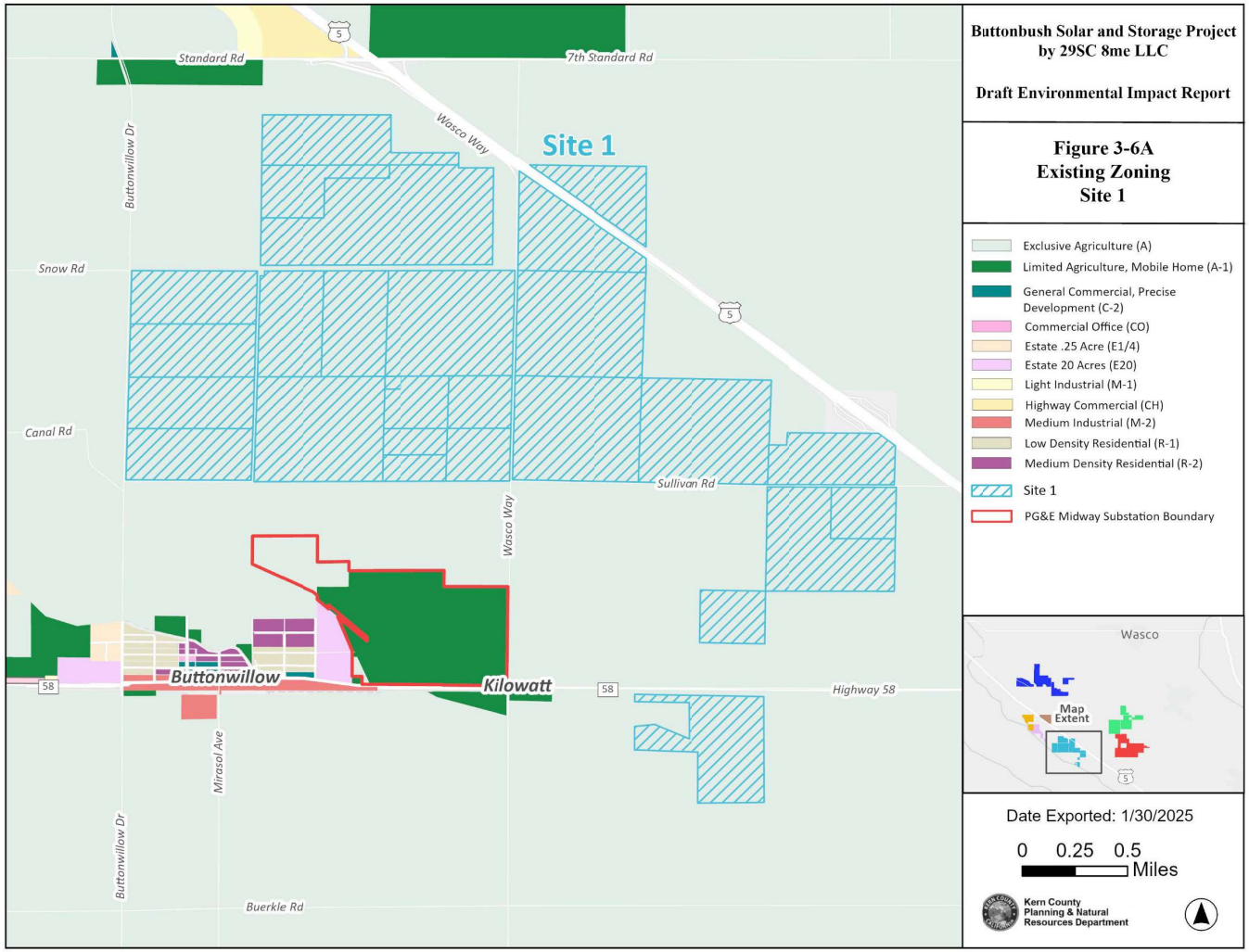


Figure 3-6: Existing Zoning Designations (B)

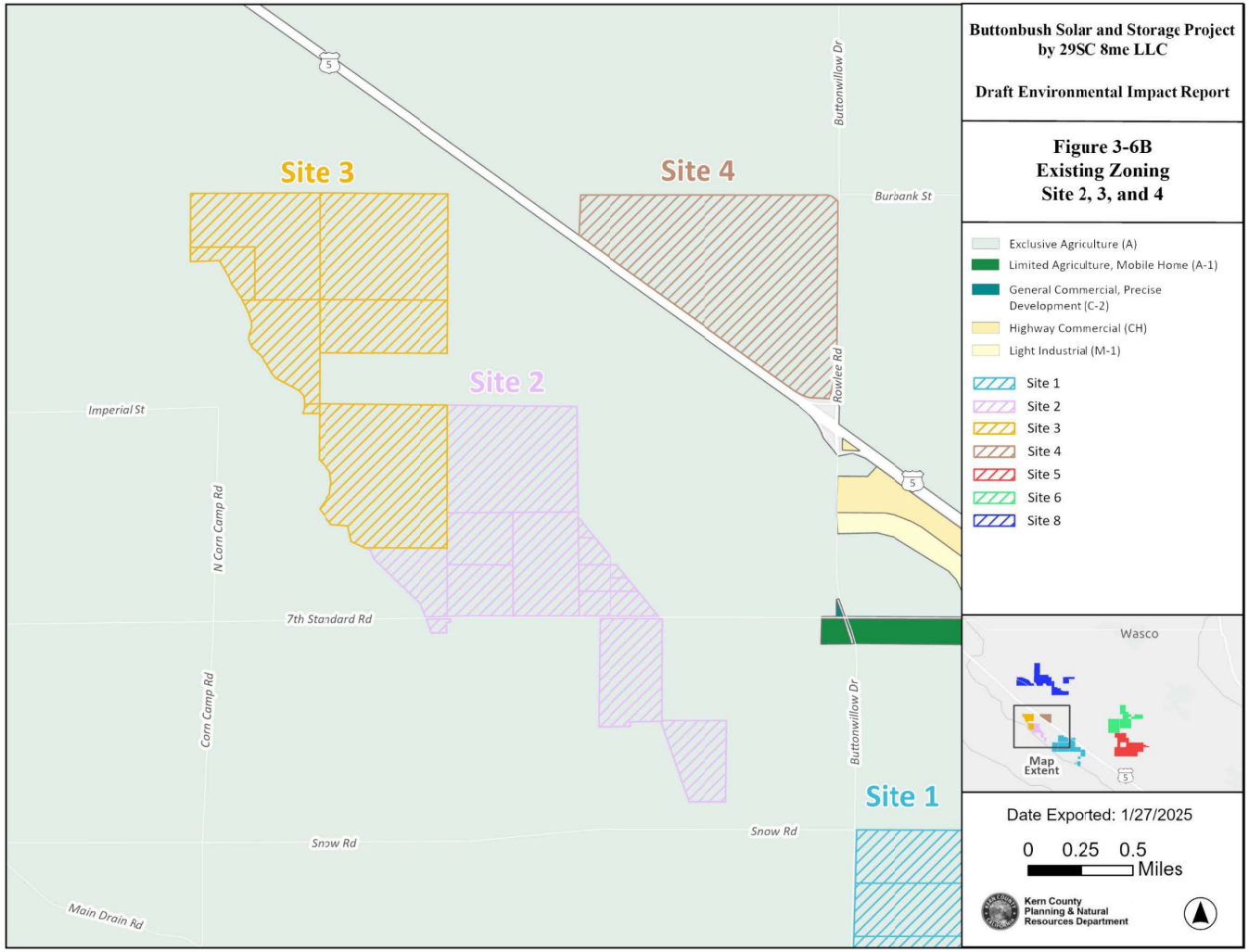


Figure 3-6: Existing Zoning Designations (C)

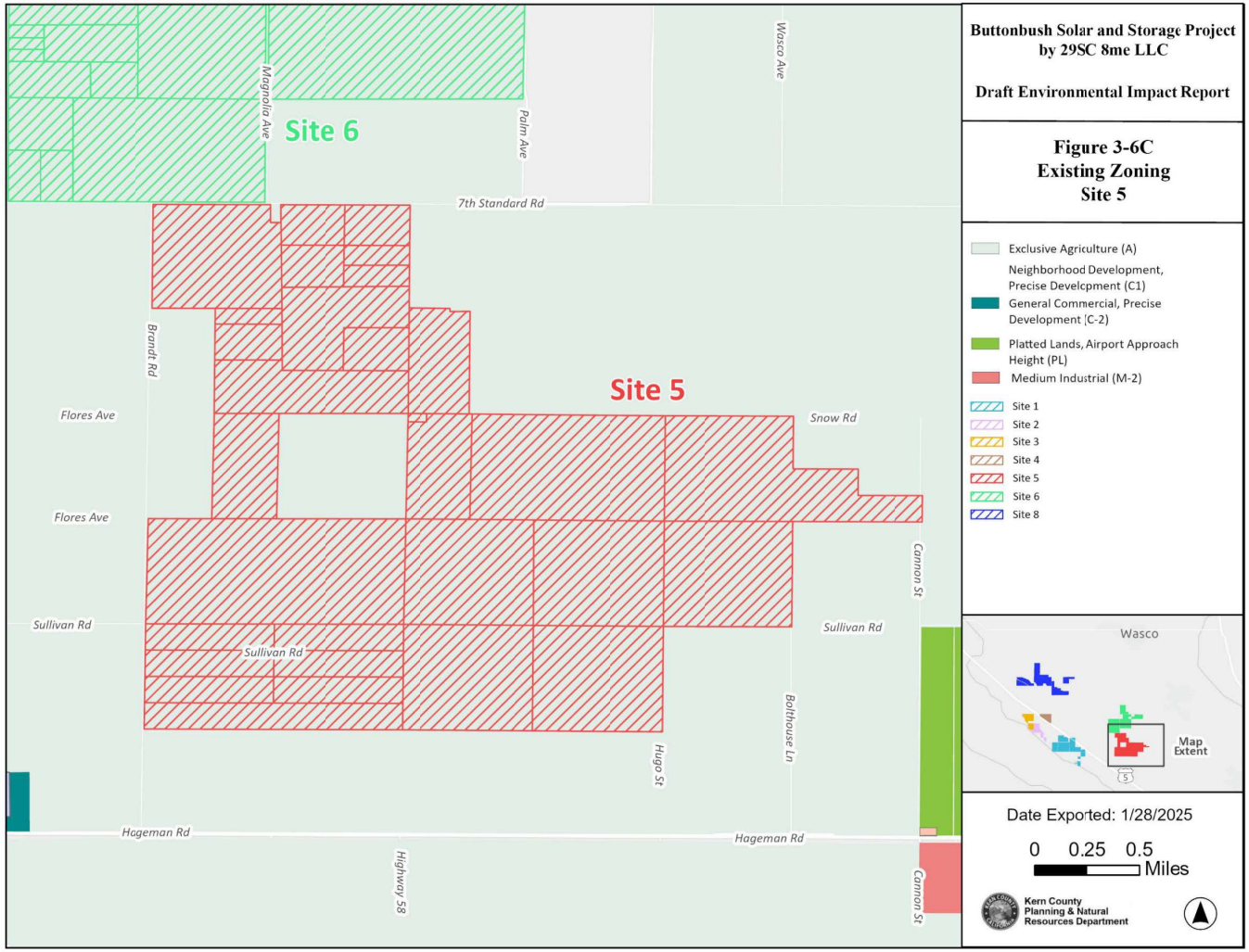


Figure 3-6: Existing Zoning Designations (D)

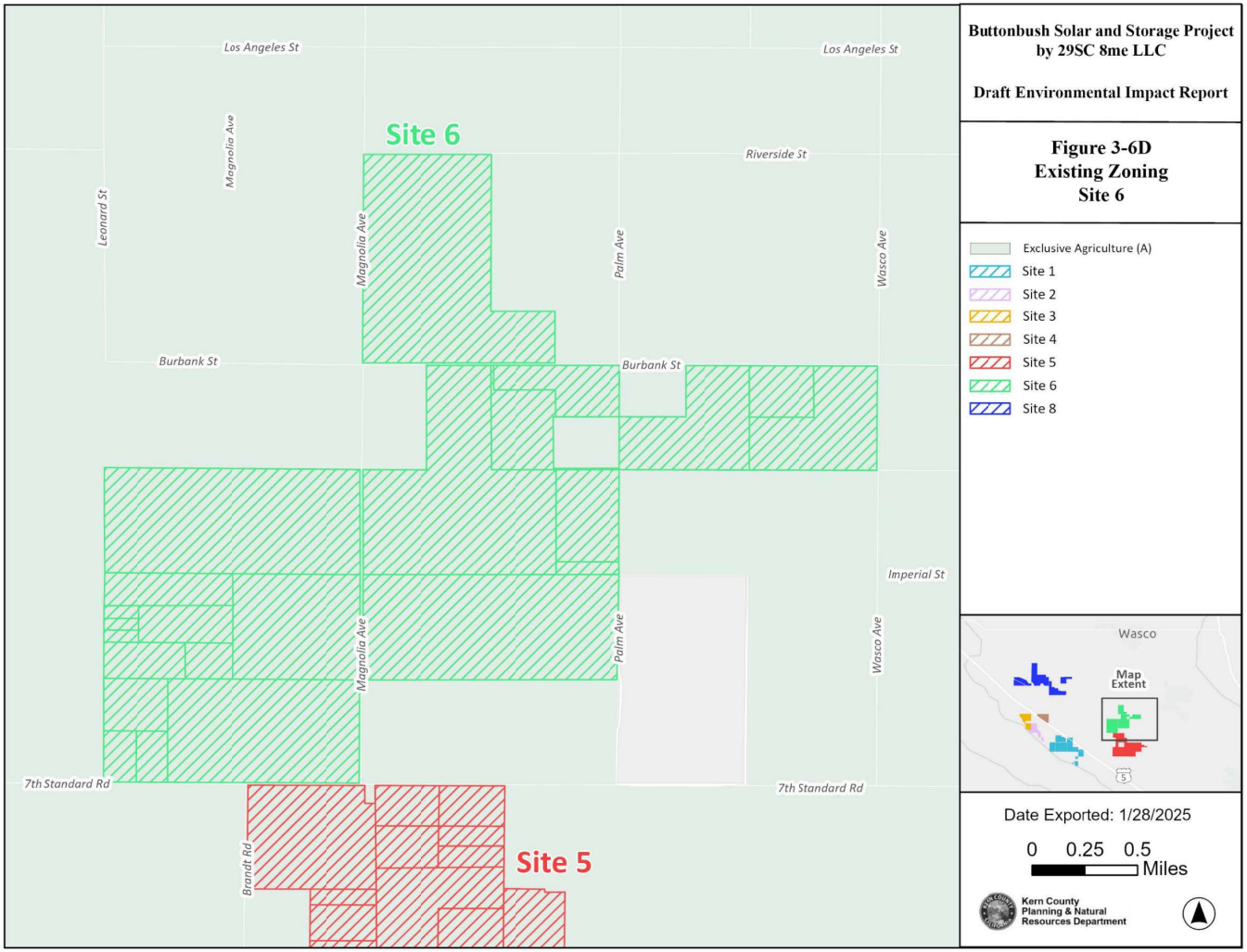
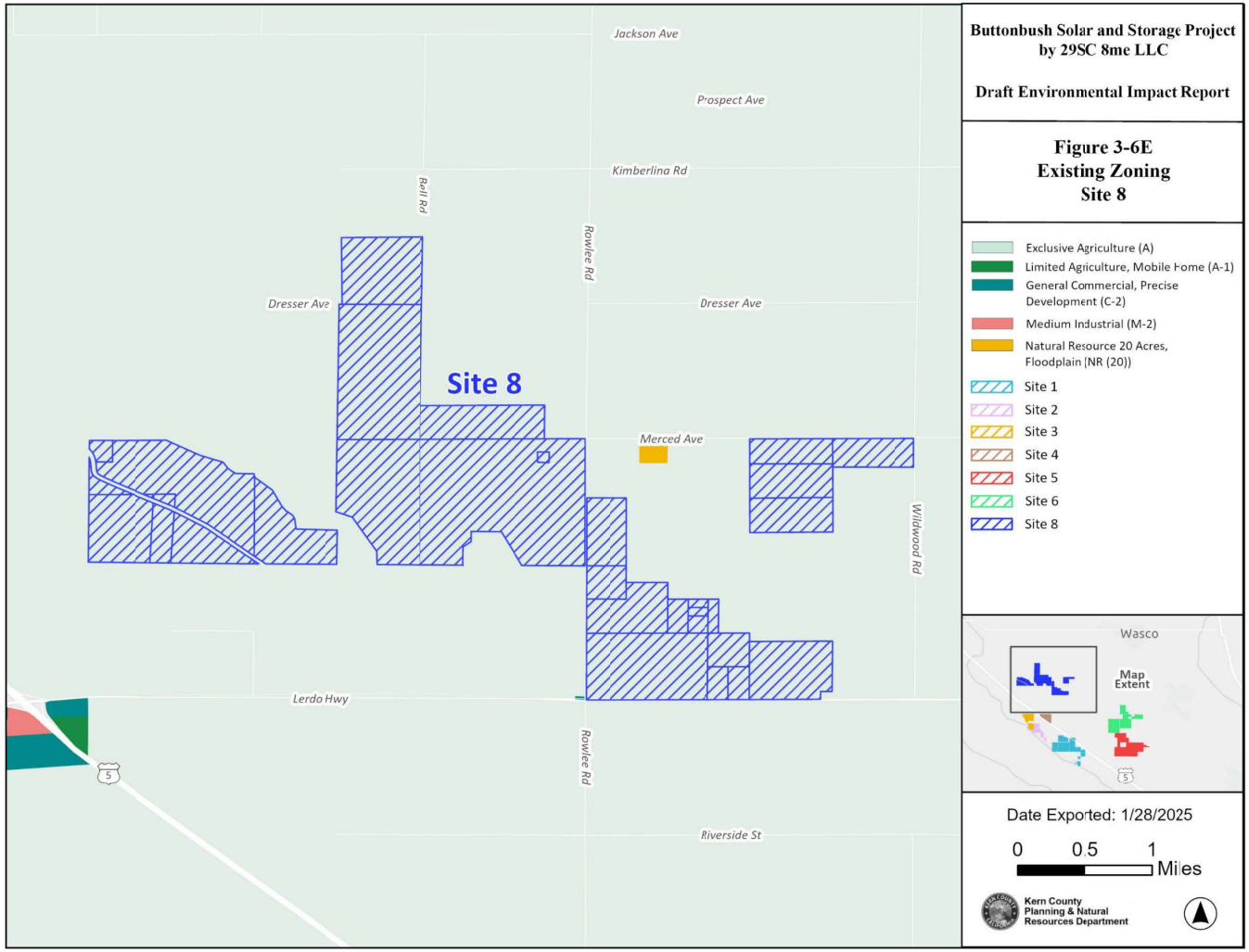


Figure 3-6: Existing Zoning Designations (E)



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3.5.3 Existing and Surrounding Land Uses

Existing land uses within and surrounding the Project site consist largely of agriculturally zoned parcels with farm and/or rural residential uses. Most of the existing agriculture uses are crop production, such as almonds, alfalfa, corn, wheat, and cotton (Appendix B). Additionally, an existing dairy is located within the Project site (Site 6) at 19211 Magnolia Avenue. Removal of the dairy will be necessary before construction of that portion of Site 6 (see Section 4.10, *Hydrology and Water Quality* for further discussion regarding the dairy and proposed mitigation measures).

The primary zoning classification in the 5-mile radius surrounding the Project site is Zone A (Exclusive Agriculture). Rural residential buildings are located in the unincorporated community of Buttonwillow and within the proposed Project boundaries. The nearest residence is a single-family dwelling on APN 087-040-04, located within the proposed Project boundary, specifically west of Rowlee Road and south of Merced Avenue, which would likely be removed as part of the proposed Project. The second closest residence includes a single-family dwelling and accessory outbuildings located on APN 087-040-06, west of Rowlee Road and north of Lerdo Hwy. The third closest residence includes a single-family dwelling and accessory outbuildings located on APN 103-010-42 and 103-010-43, east of Brandt Road and south of Seventh Standard Road. There is an existing single-family residence and agricultural accessory outbuildings located on APN 100-100-220, which is directly west of a proposed substation and BESS location at the intersection of Sullivan Road and Buttonwillow Drive. Another single-family residence and associated outbuildings are located on APN 103-060-04 just east of Brandt Road and north of Sullivan Road. The property owners of the abovementioned residential homes are all participating in the proposed Project, meaning that they have agreed to the proposed Project's development on the lands that they own. The nearest off-site residence to the Project site is located approximately 50 feet east of Site 5, east of Brandt Road and north of Flores Avenue, and another residential dwelling located 50 feet east of Site 6 and north of Orange Avenue. One-hundred feet south of Burbank Street and east of Magnolia Avenue is another residence, a single-family dwelling. The nearest school is Buttonwillow Elementary School, located approximately one mile (at the closest point) southwest of Site 1 at 42600 Highway 58 Buttonwillow, California 93206.

Table 3-3: Existing Project Site and Surrounding Existing Land Use, General Plan Map Code Designations, and Zoning

Location	Existing Land Use	Existing General Plan Map Code Designation	Existing Zoning Classification
Project Site	Active Agriculture Activities, Tjaarda Dairy, Vacant Open Space, Rural Residences, Canals, and Irrigation Ponds	*Kern County General Plan:* 2.3 (Shallow Groundwater) 4.1 (Accepted Community Plan Area) 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size) 8.3 (Extensive Agriculture, Min. 20-Acre Parcel Size) 8.4 (Mineral and Petroleum, Min. 5-Acre Parcel Size) 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size) *Buttonwillow Community Development Plan:* Agriculture	A (Exclusive Agriculture)
North	Active Agriculture Activities, Vacant Open Space, Rural Residences, County Landfill, Highway 46	*Kern County General Plan* 8.1 (Intensive Agriculture, min. acre parcel size) 8.1/2.3 (Intensive Agriculture, Min. 20-Acre Parcel Size) 8.3 (Extensive Agriculture, Min. 20-Acre Parcel Size) 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size)	A (Exclusive Agriculture)
East	Active Agriculture Activities, Dairies, Oil and Gas Production, City of Shafter, Rural Residences, Highway 43	*Kern County General Plan* 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size), 8.1/2.3 (Intensive Agriculture, Min. 20-Acre Parcel Size/Shallow Groundwater), 8.3 (Extensive Agriculture, Min. 20-Acre Parcel Size), 8.5 (Resource Management, Min. 20- or 80-Acre Parcel)	A (Exclusive Agriculture), A-1 (Limited Agriculture), C-2 PD (General Commercial, Precise Development), M-2 PD (Medium Industrial, Precise Development)

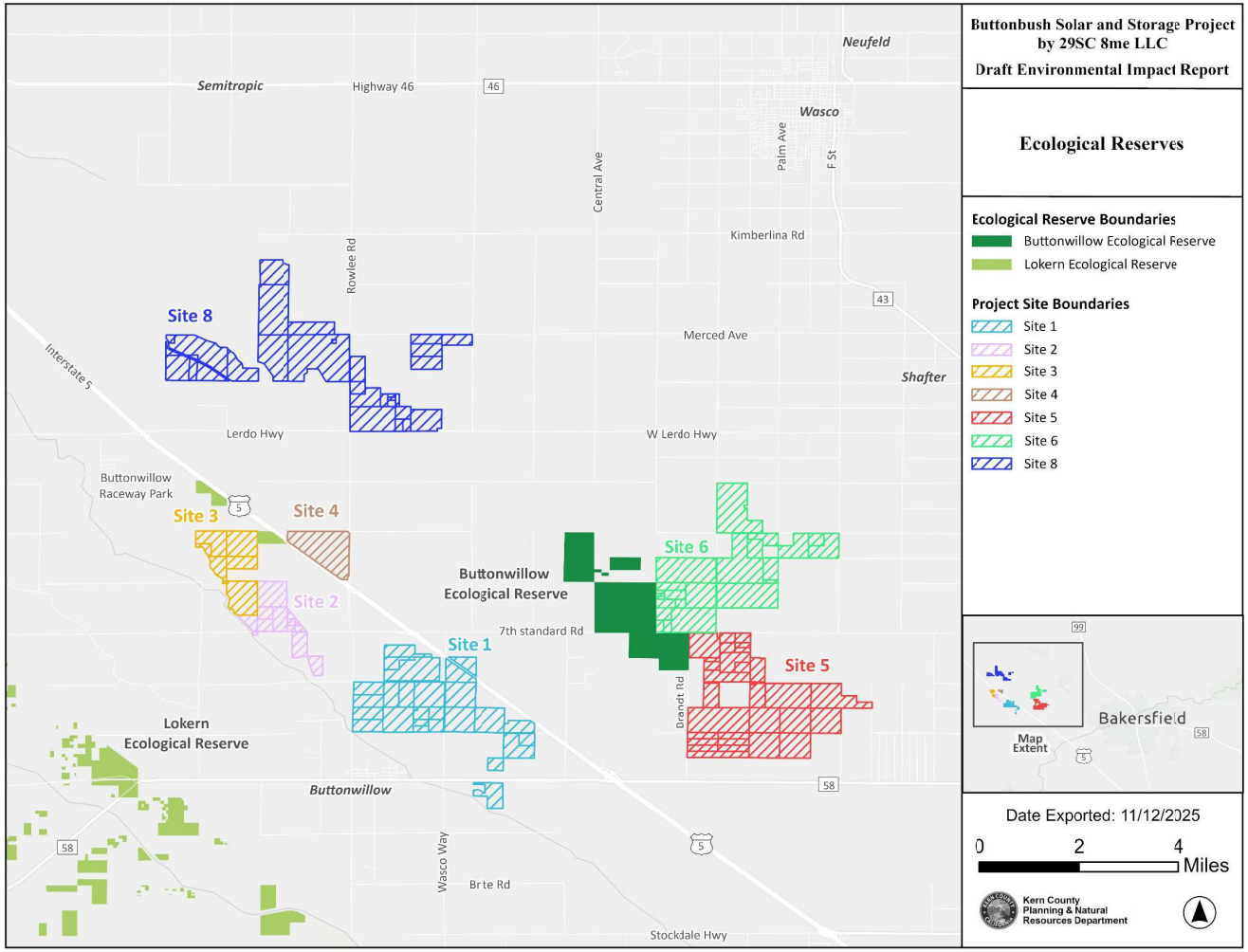
Table 3-3: Existing Project Site and Surrounding Existing Land Use, General Plan Map Code Designations, and Zoning

Location	Existing Land Use	Existing General Plan Map Code Designation	Existing Zoning Classification
South	Active Agriculture Activities, Community of Buttonwillow, Community of Rio Bravo, Rural Residences, Industrial Activities, Closed Landfill, State Route 58	*Kern County General Plan* 4.1 (Buttonwillow Community Development Plan), 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size), 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size) *Buttonwillow Community Development Plan*: Park Public Utility Residential Agricultural Light Industrial Sanitary Landfill	A (Exclusive Agriculture), A-1 (Limited Agriculture) R-1 (Low-Density residential) R-2 (Medium-Density Residential) C-2 (General Commercial) M-1 (Light Industrial) M-2 (Medium Industrial) E (Estate)
West	Active Agriculture land, Undisturbed Vacant Open Space, Raceway, Industrial Activities, Rural Residences, Interstate 5	*Kern County General Plan* 6.3 (Highway Commercial) 7.2 (Service Industrial) 8.1 (Intensive Agriculture Min 20-Acre Parcel Size) 8.3 (Intensive Agriculture Min. 5-Acre Parcel Size) 8.4 (Mineral and Petroleum) 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size)	A (Exclusive Agriculture), A-1 (Limited Agriculture)

Ecological Reserves

The Project site is located near the Lokern, and Buttonwillow ecological reserves (**Figure 3-7:** *Ecological Reserves*, below). The Lokern Ecological Reserve consists of over three dozen discontinuous areas south and west of I-5, two of which abut I-5, and one of these is adjacent to Site 3 and Site 4. The other portions of this reserve are located more than three miles southwest of the Project site. The Lokern Ecological Reserve comprises 3,100 acres of marsh, valley sink scrub, and valley saltbush scrub habitat that provide quality habitat for several threatened and endangered species. It is part of the Lokern Natural Area (LNA) that includes over 30,000 acres of high-quality habitat for various wildlife and plant species of the San Joaquin Valley. Portions of the Project site (Site 5 and Site 6) are located adjacent to the Buttonwillow Ecological Reserve. This reserve is 1,400 acres and was designated as an ecological reserve by the Fish and Game Commission in 2000. Many species of birds have been observed on the site, including prairie falcons, meadowlarks, and red-tailed hawks.

Figure 3-7: Ecological Reserves



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3.5.4 Project Site Conditions

Mineral Use Zones

The Project site is not located within a designated Mineral Resource Zone. There are several abandoned oil and gas wells located within the Project site and mineral rights holders that currently have active rights to mineral resources on several of the Tax Assessor's Parcels located within the Project site. As detailed in **Figure 3-11 (A–P):** *Proposed Site Plan*, the proposed Project would include a 10-foot, no-build setback around the oil and gas wells and provide drilling areas of suitable size at agreed upon locations to provide mineral access for holders of rights to minerals that are accessible from within the Project site.

Farmland

The Project site is located on lands designated by the Farm Mapping and Monitoring Program as Prime Farmland, Farmland of Statewide Importance, Unique Farmlands, Grazing Land, Nonagricultural or Natural Vegetation, and Vacant or Disturbed Land, pursuant to the Farm Mapping and Monitoring Program. The Project site consists of 5,784 acres of Prime Farmland, 4,128 acres of Farmland of Statewide Importance, and 670 acres of Unique Farmlands, for a total of 10,582 acres of Important Farmland. According to the State Department of Conservation (DOC), Prime Farmland is defined as land that has the best combination of physical and chemical characteristics for the production of crops. Farmland of Statewide Importance is defined as land other than Prime Farmland that has a good combination of physical and chemical characteristics for crop production. Unique Farmland is defined as land which does not meet the criteria for Prime Farmland or Farmland of Statewide Importance yet has been used for the production of specific high economic value crops at some time during the two update cycles prior to the mapping date.

Williamson Act and Farmland Security Zone Contracts

The Project site is located within Kern County Agriculture Preserves No. 6, No. 8, and No. 9. Approximately 10,689 acres of the approximately 11,983-acre Project site (102 of the 128 parcels within the Project site boundaries) are subject to active Williamson Act Land Use and Farmland Security Zone contracts (**Table 3-4:** *Williamson Act Land Use Contract Cancellations*).

A utility scale solar facility is not listed as a compatible use in Kern County's Williamson Act Standard Uniform Rules; therefore, the proposed Project would not be consistent with the existing Williamson Act and Farmland Security Zone contracts, and the cancellation of applicable contracts is required. Petitions have been filed for the notices of non-renewal and cancellation of each Williamson Act contract that applies to properties within the proposed Project boundaries. See **Table 3-4:** *Williamson Act Land Use Contract (WALUC) and Farmland Security Zone (FSZ) Cancellations*, for a list of the contracts to be cancelled and **Figure 3-8:** *Williamson Act Land Use Cancellations*, for the areas that are subject to the contracts to be cancelled.

Table 3-4: Williamson Act Land Use Contract (WALUC) and Farmland Security Zone (FSZ) Cancellations

WALUC/FSZ Cancellation Number	Landowner	Kern County Recorded Document Number	Original Contract Date	Status	APN (s)	Acreage to be Removed
Site 1						
24-03	Hill Ranch Group, LLC	0197173644	12/15/1997	Prime: Non-Renewal (in progress)	100-100-19 100-100-26 100-100-27 100-100-29	310
24-04	Hill Ranch Group, LLC	0197173645	12/15/1997	Prime: Non-Renewal (in progress)	100-100-07 100-100-08 100-100-09 100-100-10	237
24-05	Toretta LTD I, LP	0214158124	12/16/2014	FSZ: Non-Renewal (in progress)	100-100-05 100-100-06 100-100-03	235
24-18	Starrh Ranch, LLC	Book 4272 Page 947	02/27/1969	Prime: Non-Renewal (in progress)	100-100-31 100-100-32	158
24-27	Ainhoa Land Holdings LP	Book 4640 Page 687	02/28/1972	Prime: Non-Renewal (in progress)	103-030-45 103-030-46	142
24-28	The Philip Portwood Family Trust	Book 4640 Page 687	02/28/1972	Prime: Non-Renewal (in progress)	103-040-02 103-040-14 103-040-24 103-100-01 103-100-02	631
24-33	Starrh Ranch, LLC	Book 5008 Page 800	02/15/1977	Prime: Non-Renewal (in progress)	100-010-13 100-010-14 100-010-22	358
					Site 1 Subtotal:	**2,071**
Site 2						
24-07	Palla Alfred Jr & Janette Family Trust et al	0205320977	11/08/2005	Prime: Non-Renewal (in progress)	087-200-16 087-200-28 087-200-29 087-200-31 087-200-54	35
24-08	Bittleston Allan & Lynda Rev Tr	0210065031	05/11/2010	Prime: Non-Renewal (in progress)	100-020-19	128
24-26*	Louis Andreotti Jr	Book 4640 Page 637	02/28/1972	Prime: Non-Renewal (in progress)	087-200-05 087-200-39	80
24-34	Bonnie & David Bloemhof LLC et al	Book 5737 Page 2231	02/25/1985	Prime: Non-Renewal (in progress)	087-200-02	160
					Site 2 Subtotal:	**403**

Table 3-4: Williamson Act Land Use Contract (WALUC) and Farmland Security Zone (FSZ) Cancellations

WALUC/FSZ Cancellation Number	Landowner	Kern County Recorded Document Number	Original Contract Date	Status	APN (s)	Acreage to be Removed
Site 3						
24-22	Fred Palla Farms Inc	Book 4372 Page 832	02/20/1970	Prime: Non-Renewal (in progress)	087-170-12	120
24-26*	Louis Andreotti Jr	Book 4640 Page 637	02/28/1972	Prime: Non-Renewal (in progress)	087-160-19	80
24-29	Palla Alfred Jr. & Janette Family Trust et al	Book 4640 Page 849	02/28/1972	Prime: Non-Renewal (in progress)	087-200-35	195
24-30	Houchin Wallace & Janice Family Trust,	Book 4771 Page 47	02/13/1973	Prime: Non-Renewal (in progress)	087-160-01	160
24-32	Sage Creek Ranch LLC	Book 4883 Page 396	02/18/1975	Prime: Non-Renewal (in progress)	087-170-04 087-170-13 087-210-10	89
					Site 3 Subtotal:	**644**
Site 4						
24-25	A J Parsons & Family LTD PTP	Book 4495 Page 483	02/04/1971	Prime: Non-Renewal (in progress)	087-160-53	395
					Site 4 Subtotal:	**395**
Site 5						
24-09	Affentranger Farms, LLC	0195144320	11/20/1995	Prime & Mixed: Non-Renewal (in progress)	103-010-21 103-010-39 103-010-40 103-070-13 103-070-14	136
24-10	3&1 Farms Inc	Book 4165 Page 883	02/29/1968	Prime: Non-Renewal (in progress)	103-010-43	75
24-14	Bushnell Jon R & Julia Bushnell RevFamily Trust	Book 4249 Page 941	02/27/1969	Prime: Non-Renewal	103-060-04	79
24-23	Affentranger Farms LLC	Book 4491 Page 96	12/04/1970	Prime: Non-Renewal (in progress)	103-060-05	318
24-24	Affentranger Ranches	Book 4493 Page 418	12/02/1970	Prime: Non-Renewal (in progress)	103-060-10 104-050-08	398

Table 3-4: Williamson Act Land Use Contract (WALUC) and Farmland Security Zone (FSZ) Cancellations

WALUC/FSZ Cancellation Number	Landowner	Kern County Recorded Document Number	Original Contract Date	Status	APN (s)	Acreage to be Removed
24-37	Affentranger Farms LLC	Book 6085 Page 0877	01/04/1988	Prime: Non-Renewal (in progress)	103-010-18 103-010-19 103-010-20 103-010-25 103-010-28 103-010-30 103-010-31 103-010-32	494
24-38	Affentranger Ranches	Book 6085 Page 0888	01/04/1988	Prime: Non-Renewal (in progress)	103-060-08 103-060-09 103-060-11 103-060-12 104-050-01	617
24-39	Affentranger Ranches	Book 6085 Page 0897	01/04/1988	Prime: Non-Renewal (in progress)	103-070-07 103-070-08	320
24-40	Affentranger Brothers	Book 6992 Page 1078	02/14/1994	Prime: Non-Renewal (in progress)	103-070-15 103-070-16 103-070-17 103-070-18 103-070-19	241
					Site 5 Subtotal:	**2,678**
Site 6						
24-02	Sill Properties Inc	218162800	12/04/2018	Prime: Non-Renewal (in progress)	088-180-02 088-210-01	635
24-17	Sill Properties Inc	Book 4272 Page 884	03/31/1969	Prime: Non-Renewal (in progress)	088-180-11	39
24-20	Tjaarda Ranches LLC	Book 4371 Page 254	02/24/1970	Prime: Non-Renewal (in progress)	088-190-20	318
24-21	Ohanneson Section 23 Farmland LLC	Book 4371 Page 367	02/24/1970	Prime: Non-Renewal (in progress)	088-150-01	352
24-31	Sill Properties Inc	Book 4827 Page 1330	02/19/1974	Prime: Non-Renewal (in progress)	088-180-10 088-180-12 088-180-34	297
					Site 6 Subtotal:	**1,641**

Table 3-4: Williamson Act Land Use Contract (WALUC) and Farmland Security Zone (FSZ) Cancellations

WALUC/FSZ Cancellation Number	Landowner	Kern County Recorded Document Number	Original Contract Date	Status	APN (s)	Acreage to be Removed
Site 8						
24-11	Gooselake Holding Co	Book 4247 Page 680	02/21/1969	Mixed: Non-Renewal (in progress)	087-040-07	543
24-12	Gooselake Holding Co	Book 4247 Page 783	02/21/1969	Prime & Mixed: Non-Renewal (in progress)	087-040-01 087-050-18 087-050-28 087-050-29 087-050-38	885
24-13	Gooselake Holding Co.	Book 4248 Page 434	02/21/1969	Prime & Mixed: Non-Renewal (in progress)	069-340-28 069-350-09	435
24-15	Tracy Ranch Inc	Book 4251 Page 457	02/28/1969	Prime: Non-Renewal (in progress)	087-060-01 087-060-14 087-060-15	374
24-16	Tracy Ranch Inc	Book 4251 Page 529	02/28/1969	Prime: Non-Renewal (in progress)	087-060-05 087-060-07 087-060-12	45
24-19	B&E Romanini Investments LP and Romanini Family LP	Book 4370 Page 306	02/16/1970	Prime: Non-Renewal (in progress)	087-010-18 087-010-20 087-010-22 087-020-01	287
24-35	Tracy Ranch Inc	Book 5845 Page 1410	02/10/1986	Prime & Mixed: Non-Renewal (in progress)	087-060-08 087-060-11 087-060-13 087-060-39	206
24-36	Gooselake Holding Co	Book 5845 Page 1419	02/10/1986	Prime: Non-Renewal (in progress)	087-010-11 087-060-06	83
					Site 8 Subtotal:	**2,858**
					TOTAL:	**10,689**

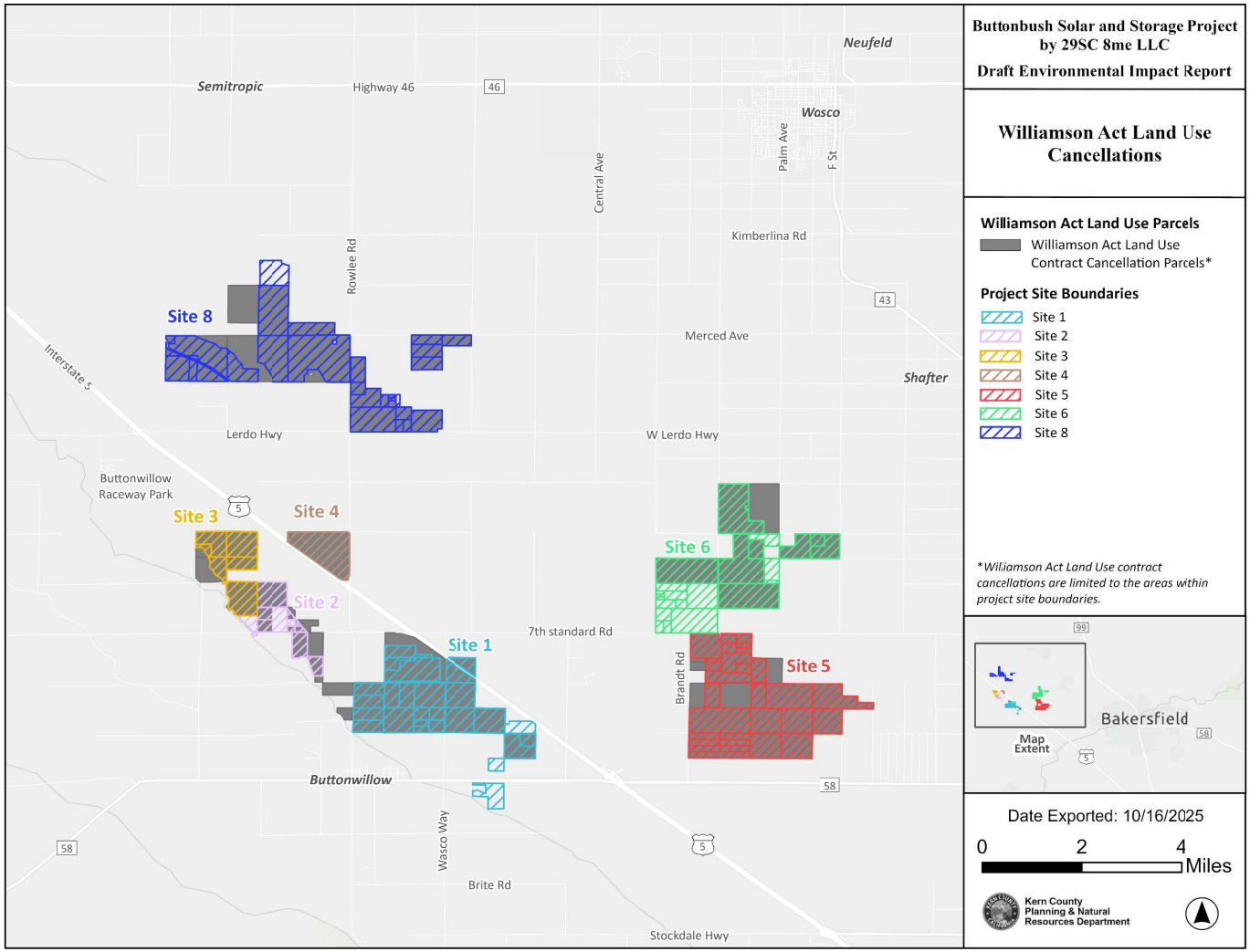
Notes:

*24–26 includes Contract parcels in both Site 2 and Site 3

Due to rounding, totals may not sum precisely.

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Figure 3-8: Williamson Act Land Use Cancellations



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Public Services

The Kern County Sheriff's Office would provide law enforcement and public safety services to the Project site, as the Kern County Sheriff's Office serves unincorporated areas of Kern County. The Kern County Sheriff's Office Buttonwillow Substation, located at 181 E 1st Street, Buttonwillow, California 93206, is the closest police station to the Project site, located approximately one mile (at the closest point) west of the Project site. The Kern County Fire Department provides fire protection and emergency medical services to unincorporated areas of Kern County and would provide fire protection services to the Project site. Kern County Fire Station 25 is the closest fire station to the Project site, which is approximately one mile (at the closest point) west of the Project site at 100 Mirasol Avenue Buttonwillow, California 93206.

The nearest public airports are the Elk Hills – Buttonwillow Airport, located at Buttonwillow, California, approximately 3.5 miles (at the closest point) south of the Project site, and the Wasco-Kern County Airport located at 14101 Airport Rd, Wasco, CA 93280, California 93263, approximately 7.8 miles (at the closest point) northeast of the Project site. The Project site is not located within any safety or noise contour zones for these airports or within any designated airport land use plan areas. (See **Figure 3-9:** *Airport Land Use Compatibility Map.*)

Site Access

Depending on the destination within the Project site, Wasco Way, Merced Avenue, Lerdo Highway, Rowlee Road, Wildwood Road, Riverside Street, Burbank Street, Buttonwillow Drive, 7th Standard Road, Snow Road, State Route 58 (SR-58), and Sullivan Road would provide access to the Project site, as shown in **Figure 3-11 (A-P):** *Proposed Site Plan*. Many dirt roads cross the Project site. Driveways and parking lot entrances would be constructed in accordance with Kern County improvement standards. Any off-site roadway improvements would be constructed in conformance with Caltrans and/or County codes and regulations, as necessary and applicable.

Flooding

The Federal Emergency Management Agency (FEMA) delineates flood hazard areas on its Flood Insurance Rate Maps. According to the Flood Insurance Rate Maps for the Project site, the site is located within Zone X, as displayed in **Figure 3-10:** *FEMA Flood Zones*. Zone X designates areas of minimal flood hazard which are determined to be outside of the 0.2% floodplain.

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Figure 3-9: Airport Land Use Compatibility Map

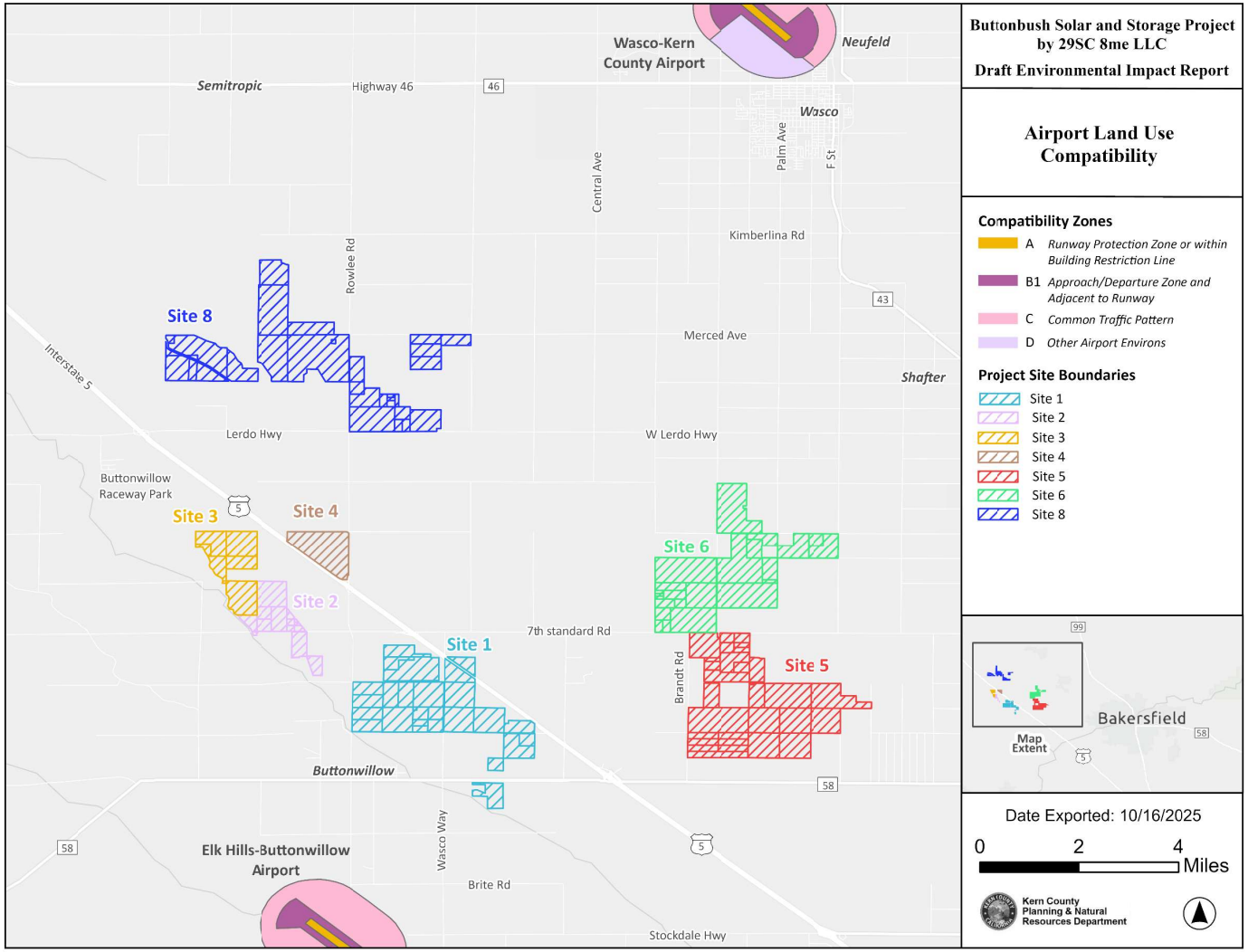
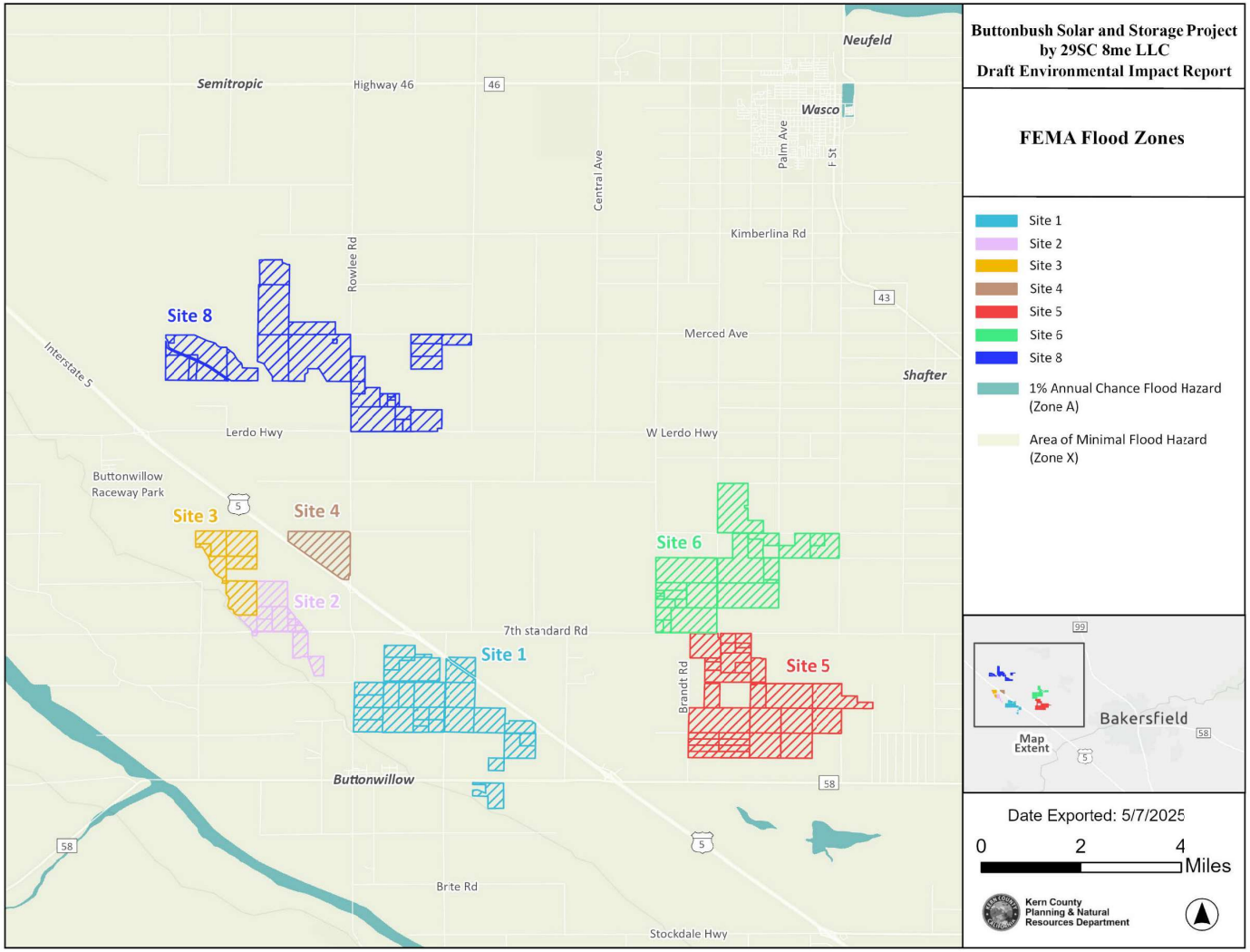


Figure 3-10: FEMA Flood Zones



3.6 Proposed Project Characteristics

The proposed Project includes the development of a solar facility and associated infrastructure with the capacity to generate up to 2 GW of electricity through solar power derived from either fixed-tilt or tracker technology and up to 2 GW, or 16,000 MWh, of BESS. As discussed above, the proposed facilities would be located on 128 privately-owned parcels covering approximately 11,983 acres in the southern portion of Kern County. The proposed layout is shown **Figure 3-11 (A–P):** *Proposed Site Plan*, and **Figures 3-2 (A–F):** *Project Site Boundaries* [*Site 1, Sites 2, 3, and 4, Site 5, Site 6, Site 8*]. The proposed facilities include the following components, each of which are described in greater detail below:

- PV modules
- Collection (underground and or above ground), inverters, and transformer systems
- BESS
- On-site meteorological stations
- On-site substations
- PG&E Midway Substation upgrades
- Microwave/radio towers
- Generation-transmission lines (including underground and aboveground optical ground wire), and gen-tie line Caltrans crossing at the I-5 and SR 58
- Use of onsite water wells and water storage tank(s)
- Operations and maintenance buildings
- 12 kV distribution line for permanent power to the O&M buildings
- Project site security, internal roadways, and fencing
- Project site lighting

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Figure 3-11 (A–P): Proposed Site Plan

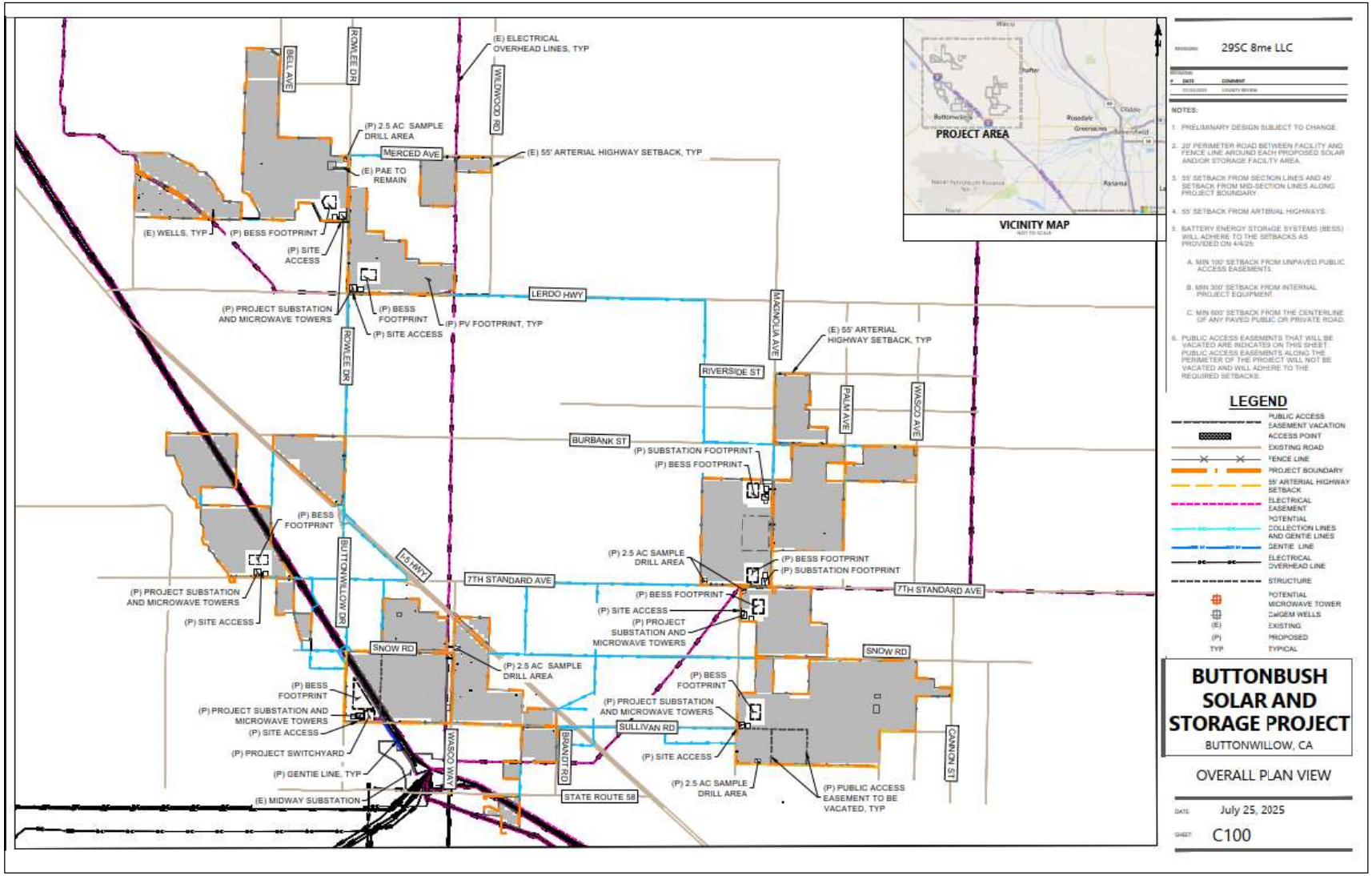


Figure 3-11: Proposed Site Plan (B)

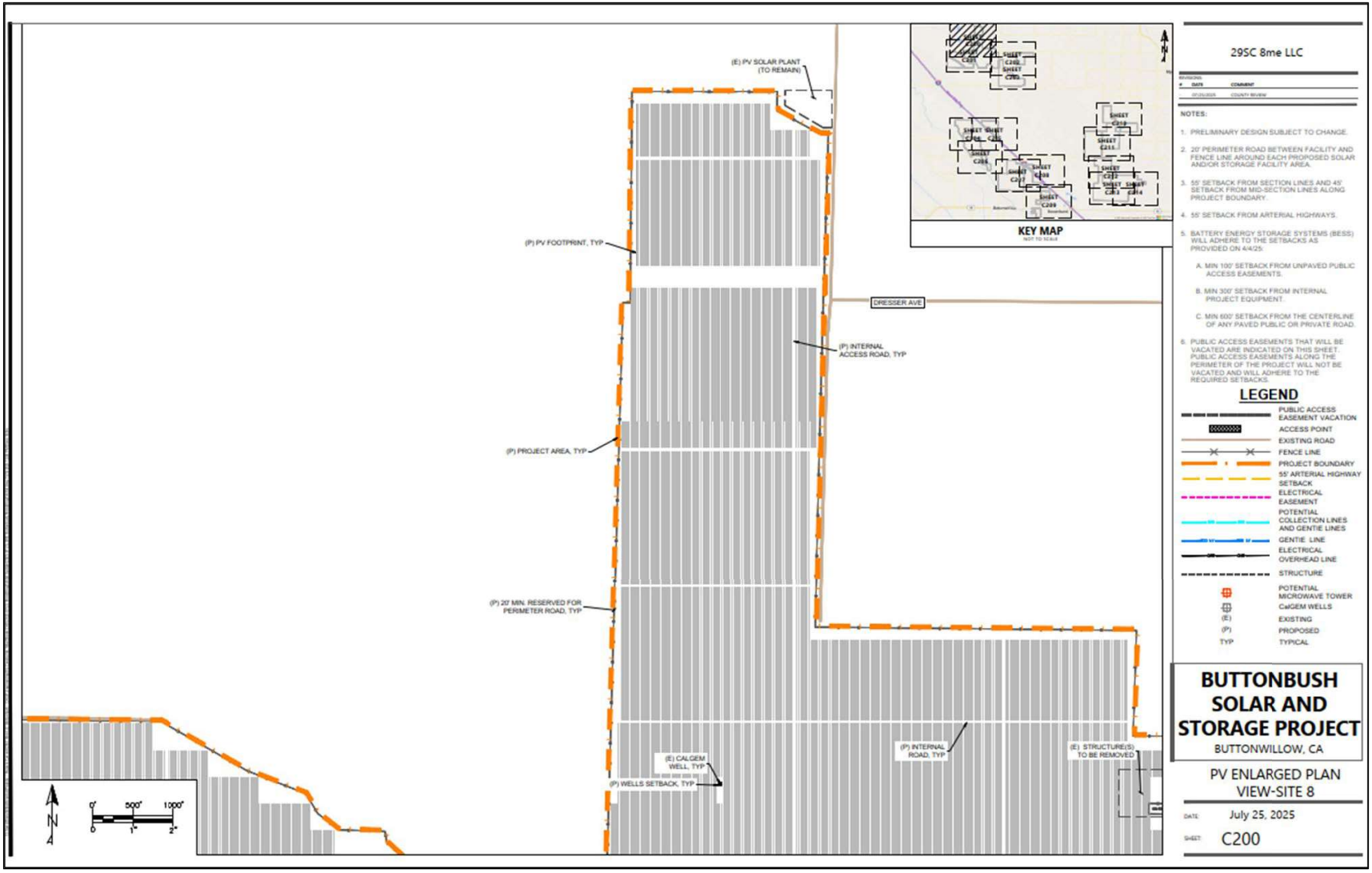


Figure 3-11: Proposed Site Plan (C)



Figure 3-11: Proposed Site Plan (D)

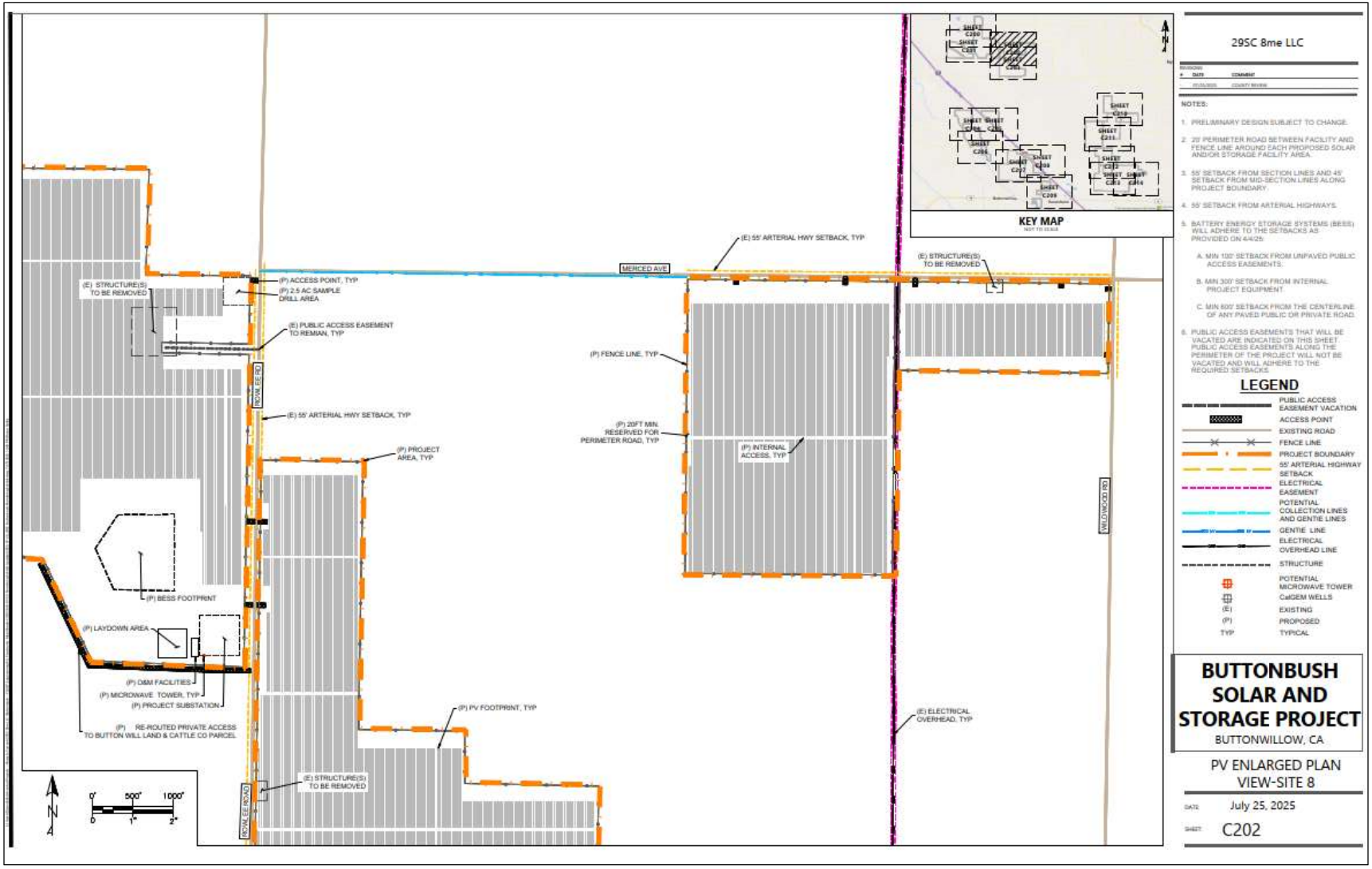


Figure 3-11: Proposed Site Plan (E)

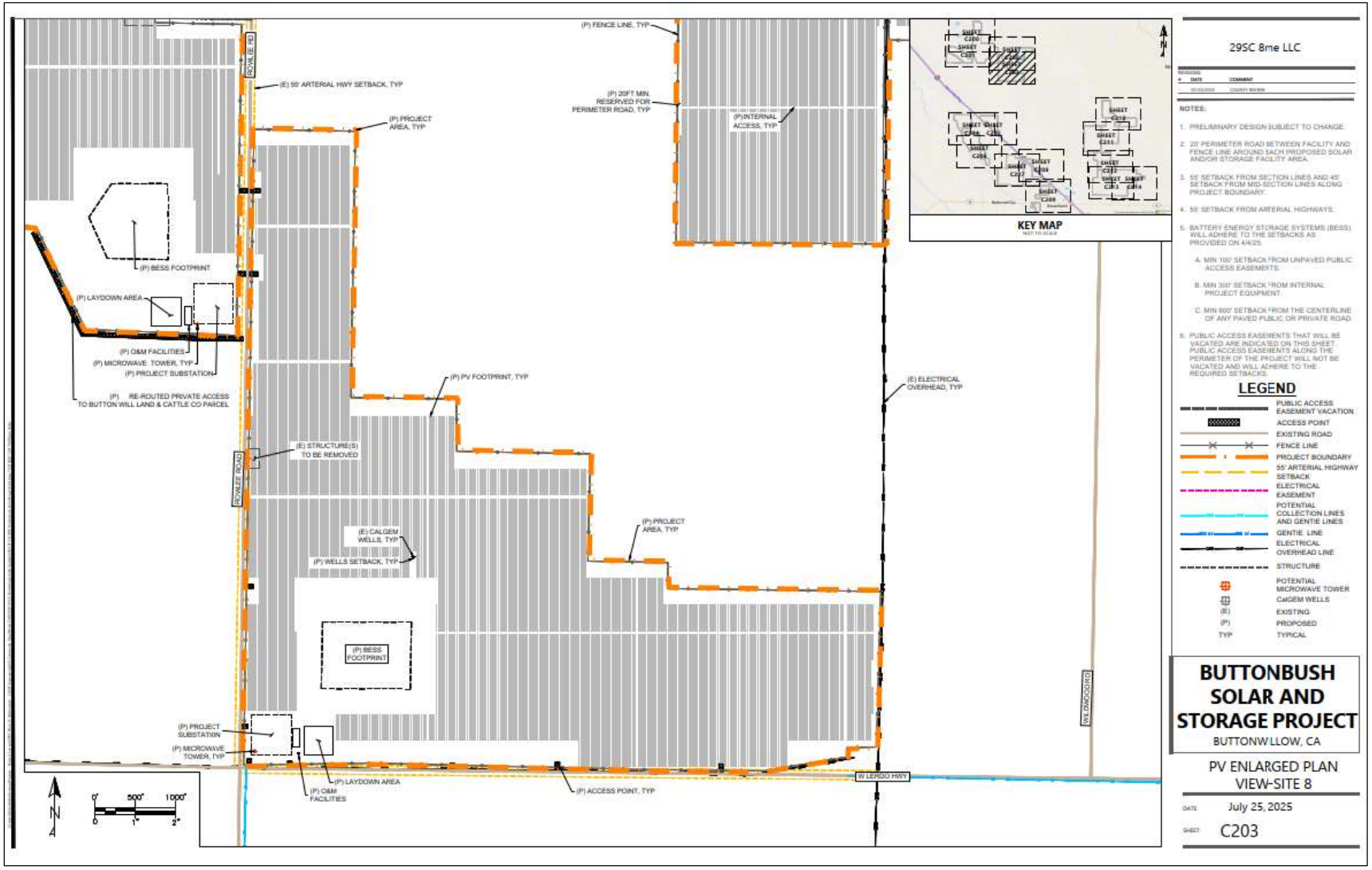


Figure 3-11: Proposed Site Plan (F)



Figure 3-11: Proposed Site Plan (G)

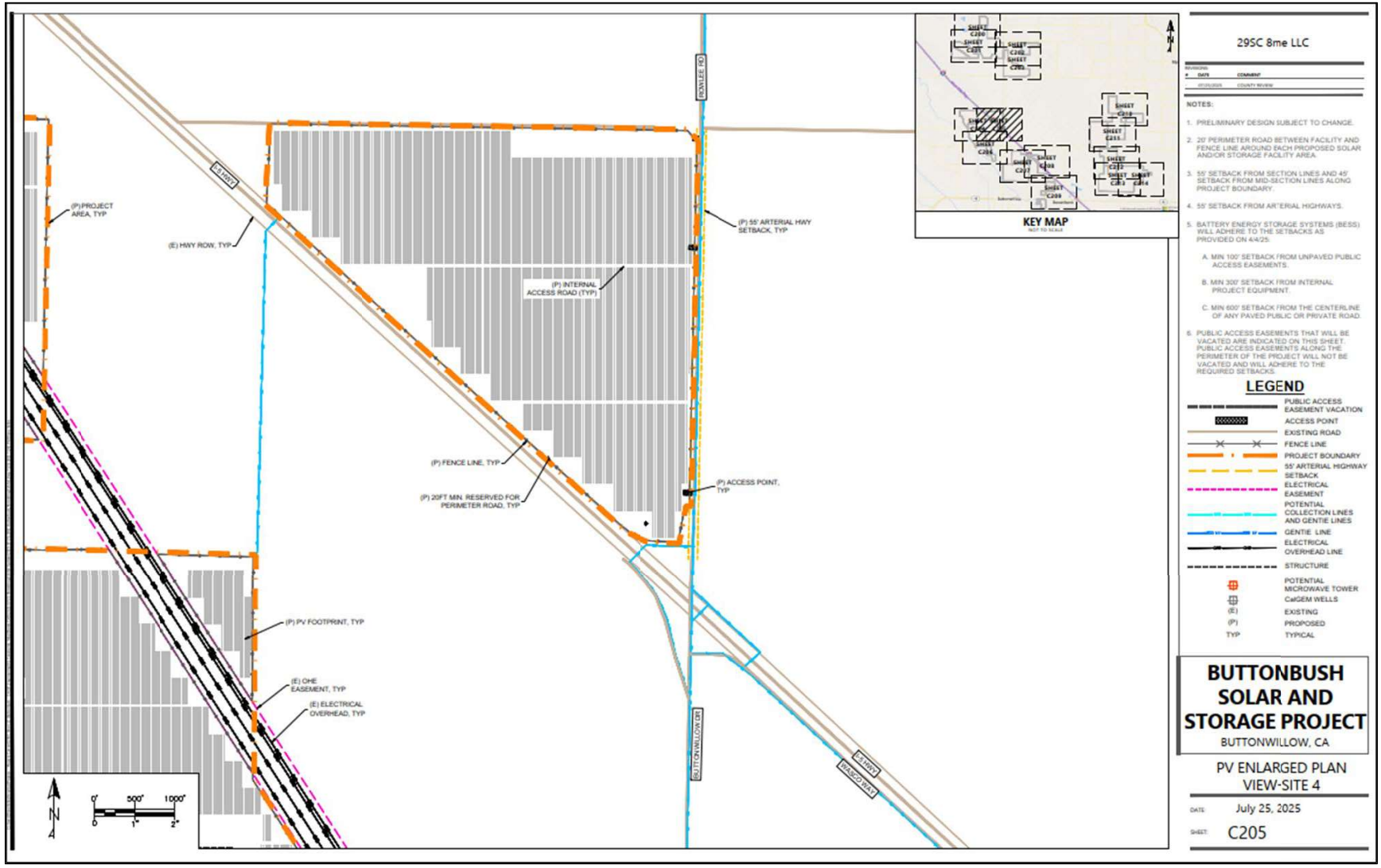


Figure 3-11: Proposed Site Plan (H)

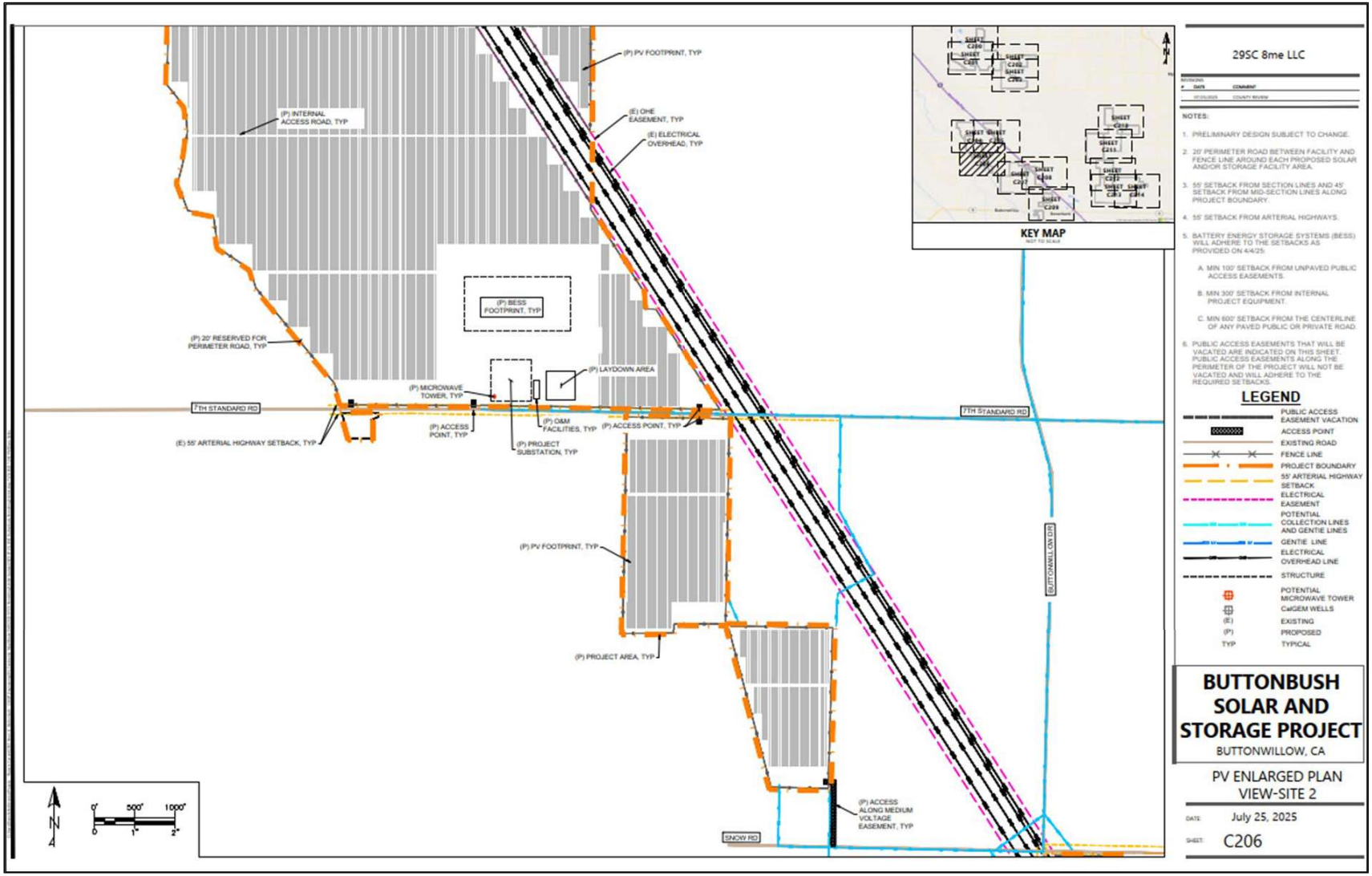


Figure 3-11: Proposed Site Plan (I)



Figure 3-11: Proposed Site Plan (J)

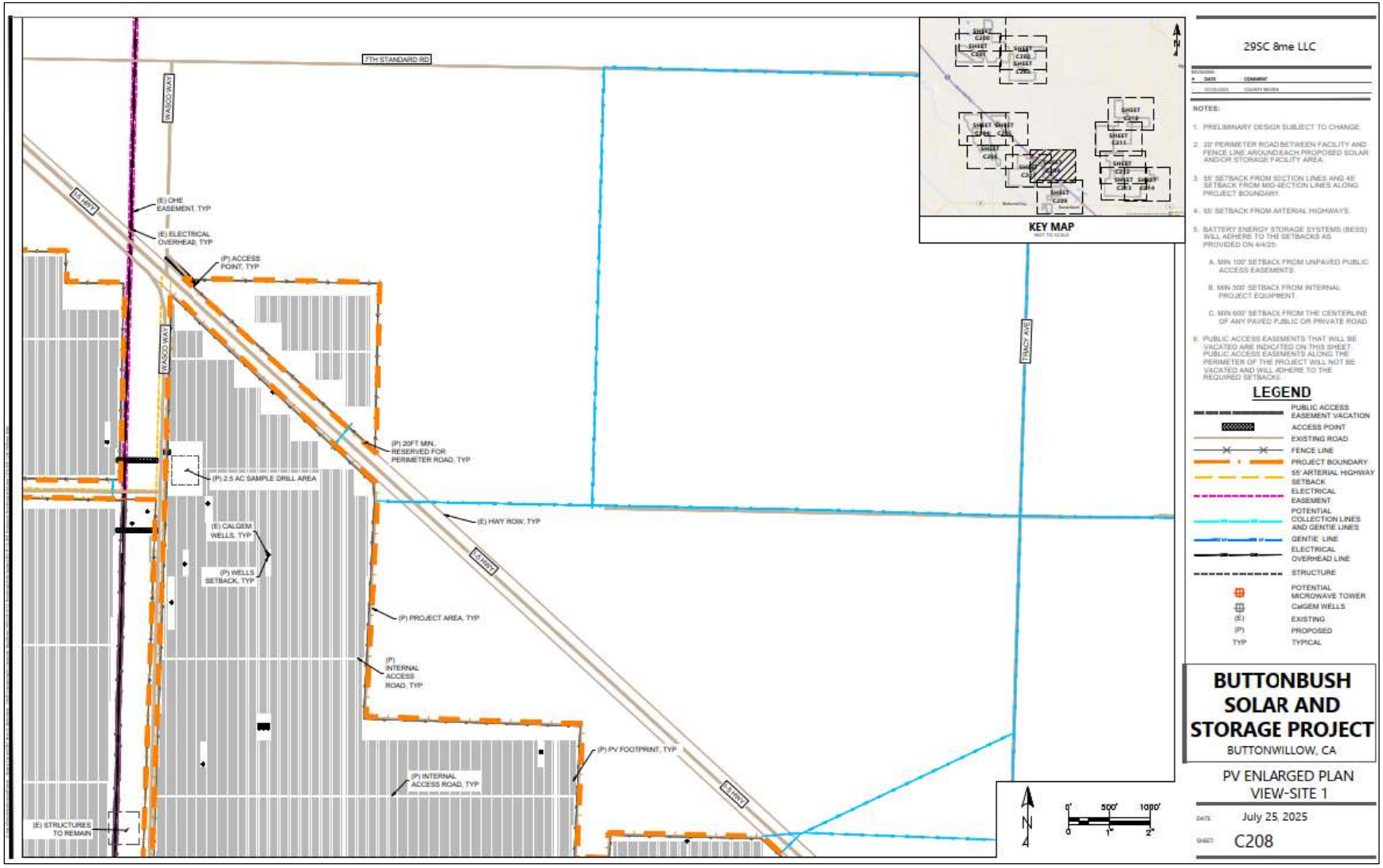


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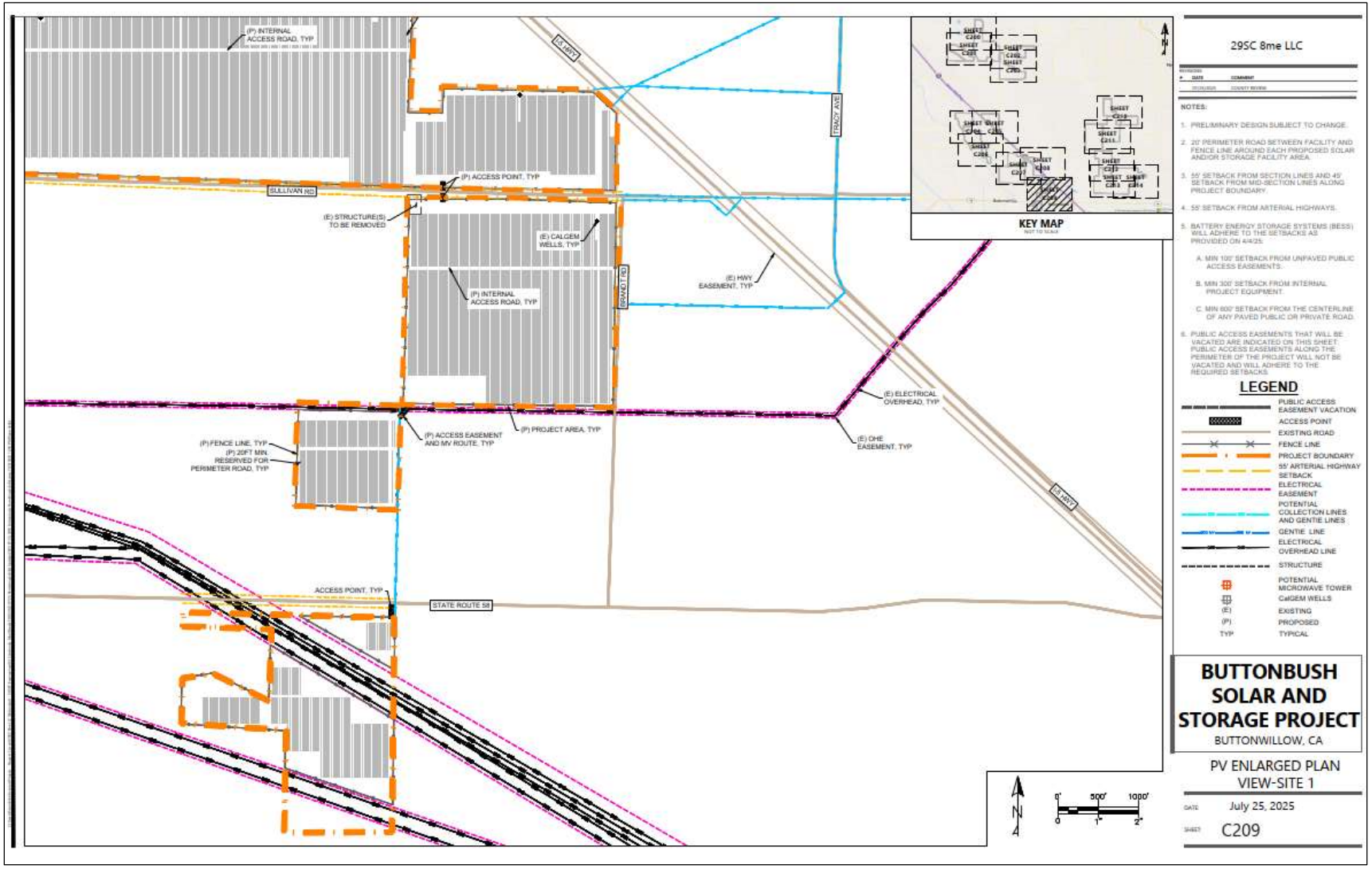


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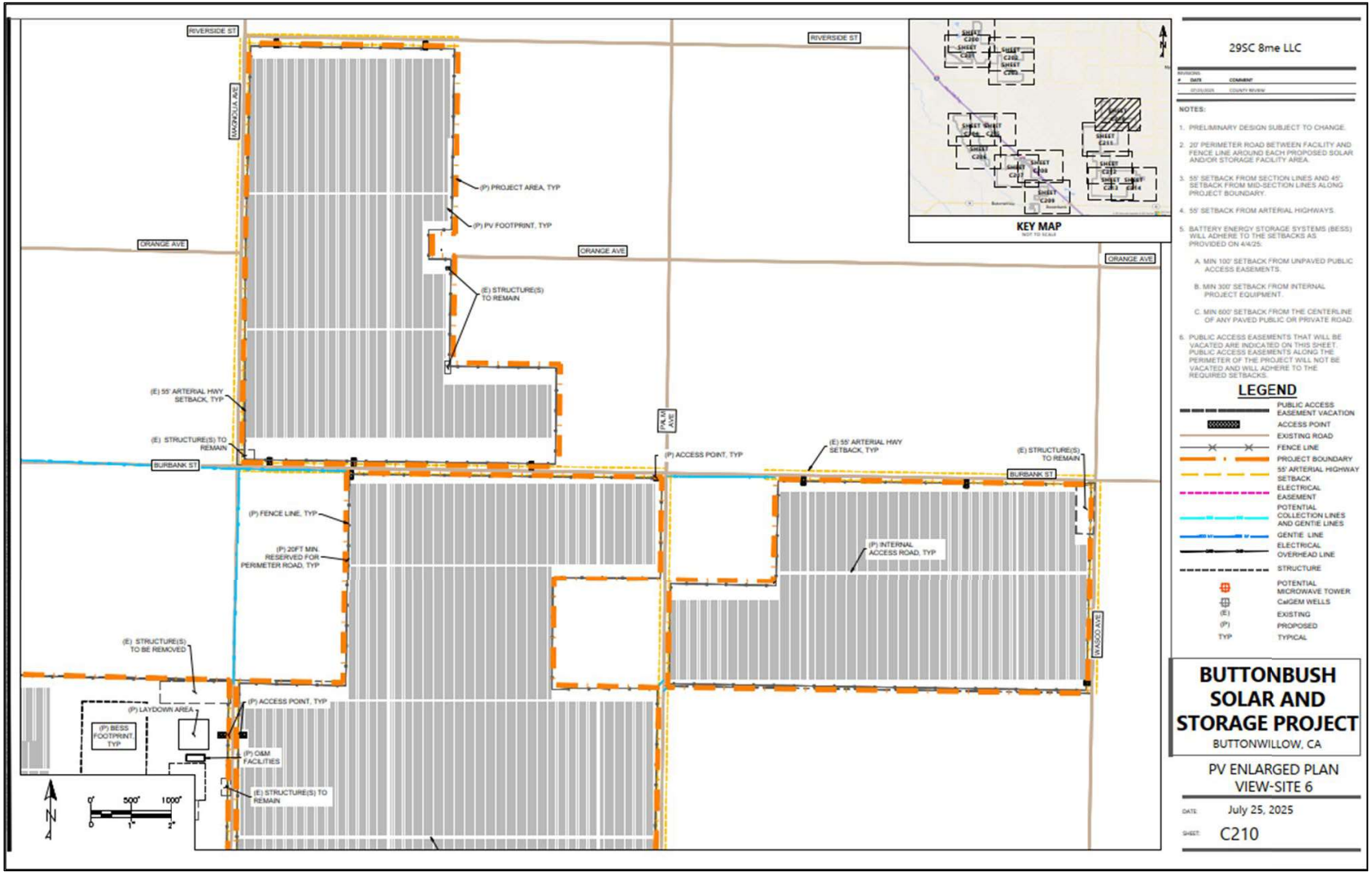


Figure 3-11: Proposed Site Plan (M)

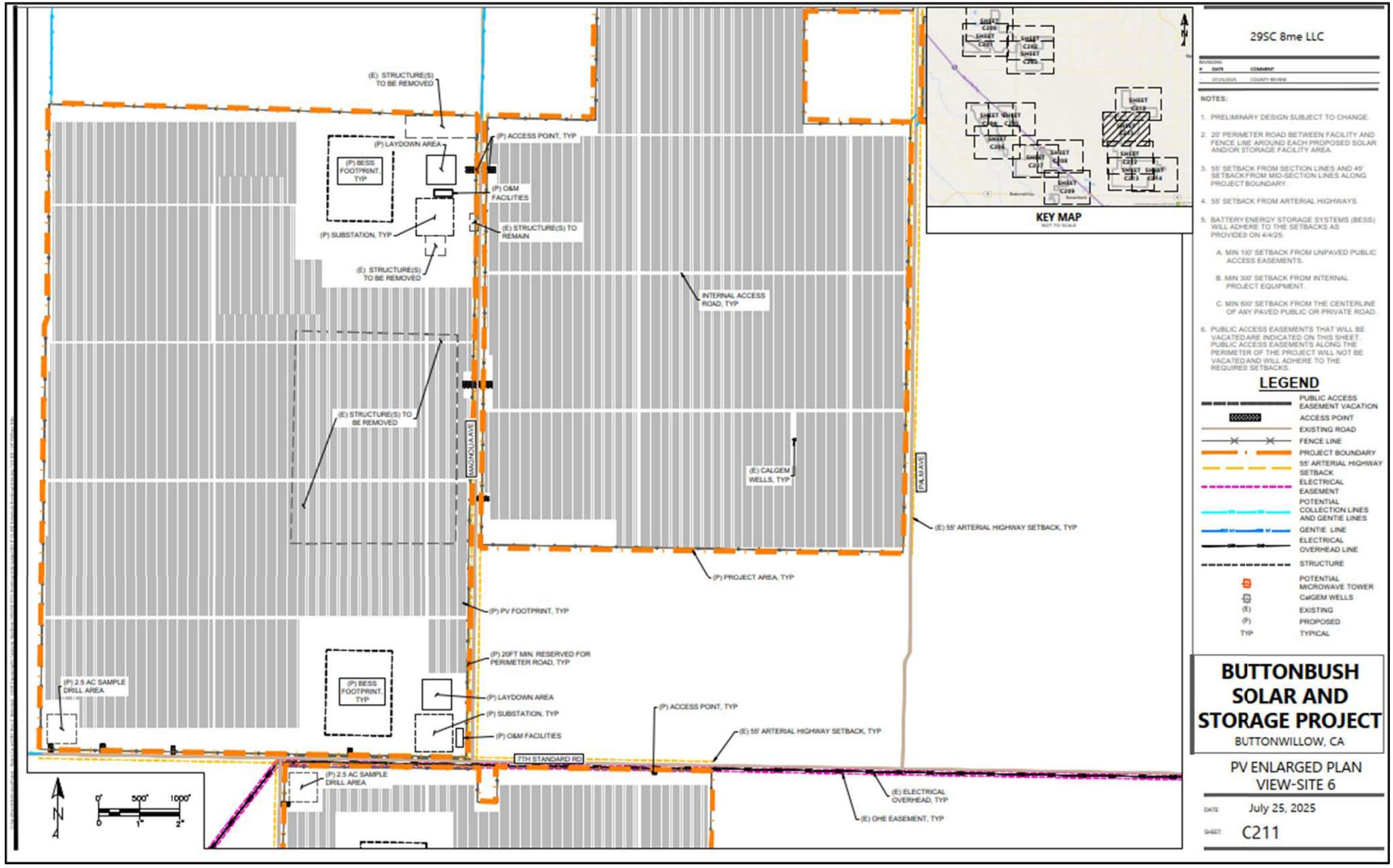


Figure 3-11: Proposed Site Plan (N)

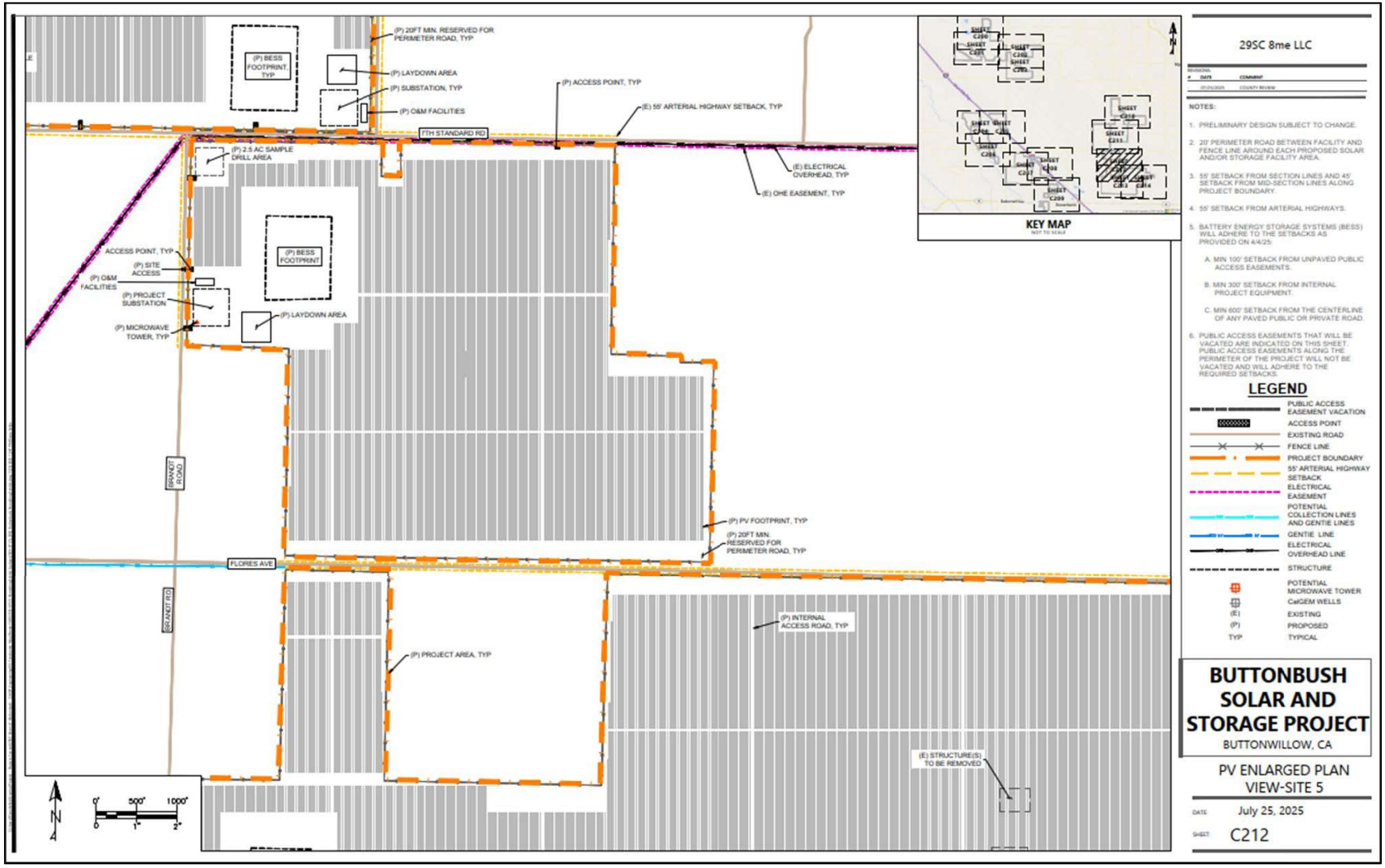


Figure 3-11: Proposed Site Plan (O)

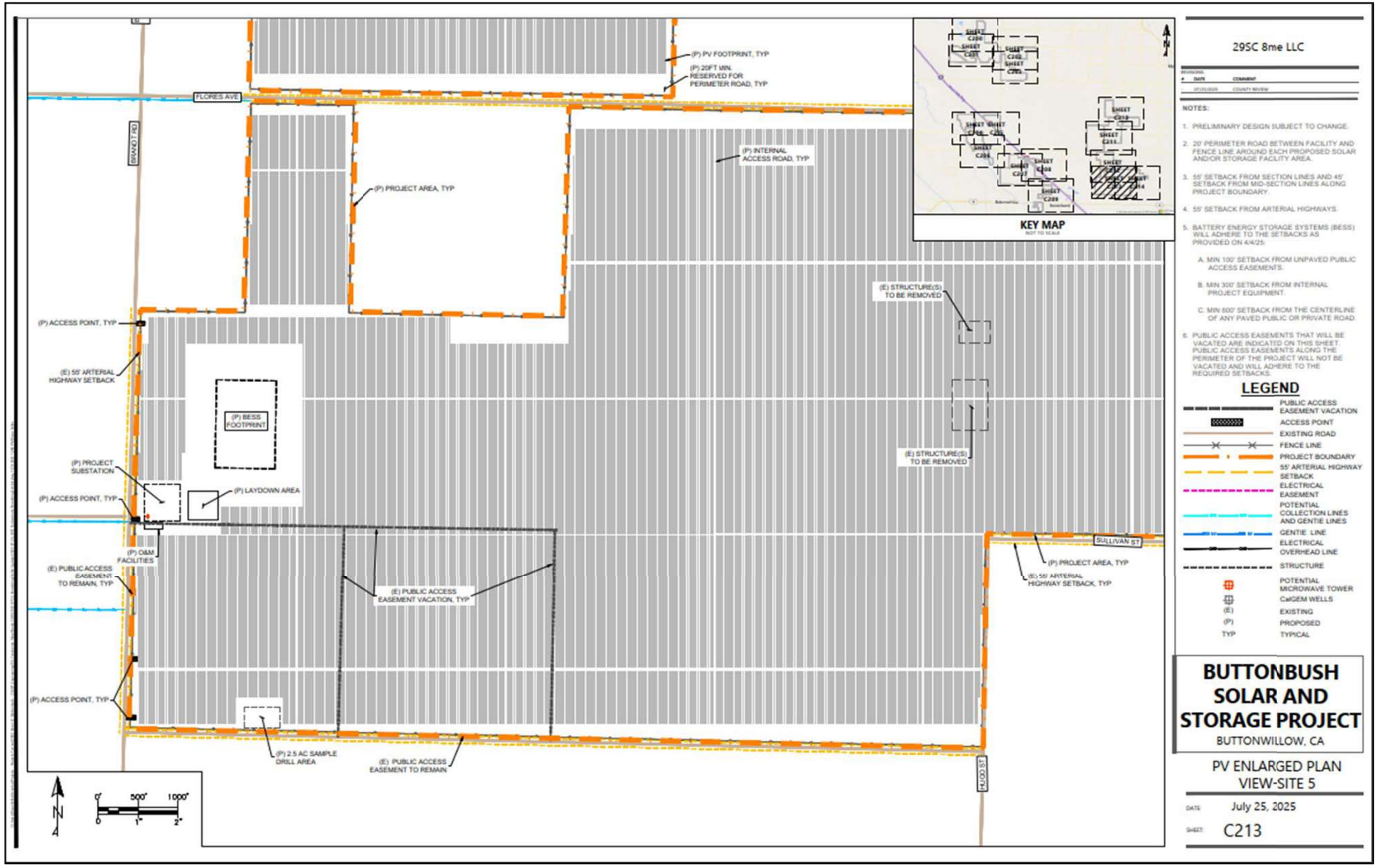
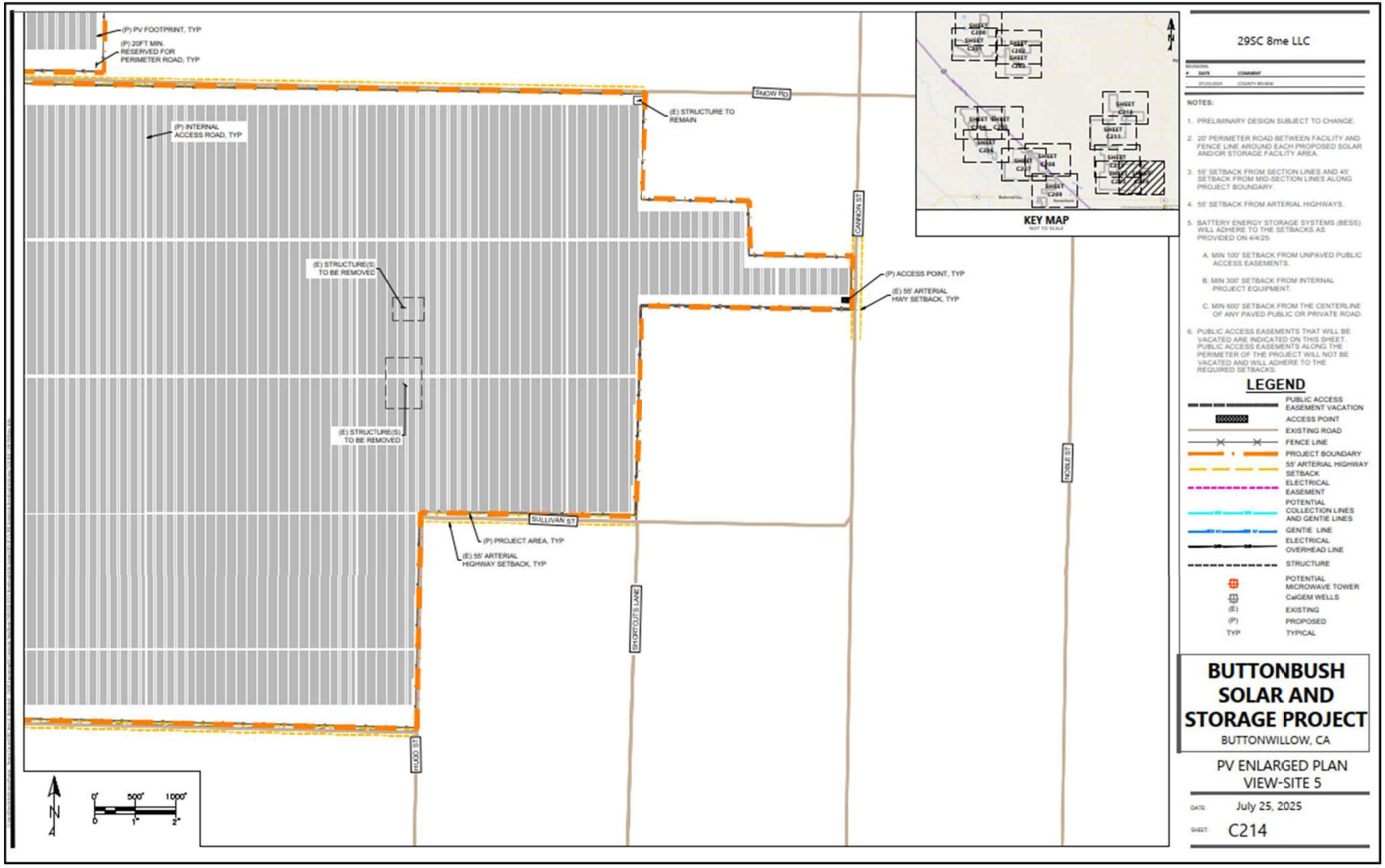


Figure 3-11: Proposed Site Plan (P)



3.6.1 Project Components

Photovoltaic Modules and Trackers

The proposed Project would use photovoltaic panels or modules on mounting frameworks to convert sunlight directly into electricity. Individual panels would be installed on either fixed-tilt or tracker mount systems (single- or dualaxis, using steel or aluminum). The solar array fields would be arranged in groups called "blocks" with inverter stations generally located centrally within the blocks. Photovoltaic energy would be delivered via cable to inverter stations, generally located near the center of each block of solar panels, to convert the direct current (DC) energy to alternating current (AC) energy to be dispatched to the transmission system. Power Converter Stations (PCS) would be comprised of one or more inverter modules with a rated power of up to 10 MW each, a unit transformer, and voltage switch gear. The unit transformer and voltage switch gear would be housed in steel enclosures, while the inverter module(s) would be housed in cabinets. Depending on the vendor selected, the inverter station may lie within an enclosed or canopied metal structure, typically on a skid or concrete pad.

Energy from the inverter stations would be transferred to the Project substation(s) by overhead or underground 34.5kV collector lines. Collector lines may be bundled together as they approach the substation(s), sharing common trenches or poles. Collector lines would connect to the substation bus bar before being stepped up to a higher voltage for transmission. Transmission lines between project substations would typically carry electricity at voltages between 230kV and 500kV.

Trackers

If the panels are configured for fixed tilt, the panels would be oriented toward the south. For tracking configurations, the panels would rotate to follow the sun over the course of the day. Although the panels could stand up to 20 feet high, depending on the mounting system used and on County building codes, panels are typically between 1 and 9 feet high. The conceptual site plan (**Figure 3-11 (A-P):** *Proposed Site Plan*) illustrates the proposed Project facilities and solar panel layout, O&M building, Project substation(s), and electrical infrastructure.

The trackers would use small motors to adjust the PV modules' panel orientation to optimize power production by angling the panels toward the sun throughout the day as well as adjusting for seasonal variations. Metal posts (piles) driven into the ground with a pile driving machine would support the tracking system and PV modules. The location of the piles would be determined using a precise survey and then laid out to ensure proper positioning of the tracker assembly parts. A bearing assembly that supports and allows proper movement/orientation of the torque tube assembly will be affixed to the top of each pile. The balance of the assembly consists of the tracking drive system and torque tube assembly that adjusts the orientation of the attached PV panel. The pile support would be adequate to support the weight of the assembly and strong enough to manage the system through its daily range of motions.

Panels

The Photovoltaic (PV) modules are made of semiconductor material encapsulated in glass in which the photovoltaic effect converts light (photons) into electrical current. Photovoltaics are best known as a method for generating electric power by using solar cells to convert energy from the sun into electricity. Energy from the sun is transmitted to the Earth as photons, which contain different levels of energy corresponding to different frequencies of the solar spectrum. When a photon is absorbed by a PV cell, the energy of the photon is transferred to an electron in an atom within the PV cell.

The panels are enclosed in frames to provide structural rigidity and support to the panels and mounted on steel support posts that are pile-driven into the ground. The PV panels would be self-contained, durably constructed units designed to withstand exposure to the elements for a period of 35 years or longer. The solar modules deployed for this proposed facility would be certified to comply with industry standard quality testing and would be electrically connected to the grid through the on-site substation, gen-tie line, to the existing PG&E Midway substation, described further below. All improvements would be made in accordance with local and State codes and regulations. The final panel selection would be determined at the detailed project-engineering phase and per market availability.

Inverter Skids

The proposed solar facility requires inverters, transformers, and other electrical equipment. Within the proposed solar arrays there would be inverter skids, also known as power conversion stations (PCS), that would contain at a minimum one inverter and one transformer. Inverters are usually housed within an enclosed structure, which helps to reduce the resulting operational noise levels. PCS would also likely include an exhaust fan, and could include a heating, ventilation, and air conditioning (HVAC) system, which is typically mounted to the exterior of the enclosure. Each inverter and transformer would be installed as per manufacturer's requirements.

Battery Energy Storage System

The proposed solar facility will include AC-coupled BESS in up to eight (8) BESS locations, located at or near a substation/switchyard (on-site or shared) and/or at the inverter stations, as depicted in **Figure 3-11 (A-P):** *Proposed Site Plan*. The collective BESS would be up to 2 GW in capacity and up to 550 acres in total area, not to exceed five percent of the Project area. The BESS would consist of modular and scalable battery packs and battery control systems that conform to U.S. national safety standards.

The BESS solutions would include commercially available lithium-ion based or non-lithium ion-based storage technologies. The actual dimensions and number of energy storage modules and structures would vary depending on the application, supplier, and configuration chosen, as well as an off-taker/power purchase agreement requirements and County building standards. These storage technologies typically consist of standard sized battery containers (approximately 40 feet in length by 8 feet in width by 9 feet in height) set on a concrete pad or driven post foundations, combined

with transformers and controls systems. The BESS equipment may also be housed in a dedicated building(s) in compliance with applicable regulations. The maximum height of a dedicated structure will not exceed 25 feet. **Figure 3-12:** *Representative Examples of Typical Battery Storage Energy Systems*, depicts representative examples of typical BESSs.

The BESS solutions would be unmanned, remotely controlled and periodically inspected for maintenance purposes. The BESS solutions would be designed to conform with Kern County and national BESS fire standard National Fire Protection Association (NFPA) 855, would have all required Underwriters Laboratories (UL)9540A reports, and would be certified to UL9540, if required. Starting approximately five years after original installation, the Project proponent may be required to install additional battery modules and enclosures to augment lost storage capacity, which occurs naturally as the batteries are used. BESS augmentation would occur within areas designated for BESS, as shown on the site plans, and would ensure the proposed Project can maintain the full energy storage capacity approved under the proposed Project. BESS augmentation would not result in increased storage capacity beyond the amount approved under the CUPs.

On-site Meteorological Station

One or more solar meteorological stations would be on-site, the location of which would be determined in final Project design. The meteorological station would include solar energy (irradiance) meters, in addition to an air temperature sensor and wind anemometer. The maximum height of this equipment would be 20 feet.

Electrical Collection

The project power generated onsite would be fed to the Project substation(s) likely through a 34.5- and 230kV power collection system. The transmission poles would accommodate the underground feeder splice lines to the overhead lines and would vary in height but be no taller than 160 feet. The likely materials for the poles would be wood, non-reflective metal, and/or spun concrete. These overhead lines would be carried via new and existing electrical poles to one or more substations. Underground transmission lines (if necessary) and fiber optic lines would be co-located with roads.

Underground collection cables would be installed in conjunction with roads and panel arrays within the Project site, connecting each PCS to a feeder circuit; each feeder circuit would in turn be connected to the substations. Overhead circuits could be used to avoid environmentally sensitive areas or other constraints that are inherent to the Project site. The different solar panel circuits would gather at the substations (or switchyard) and would then be sent to the overhead electricity lines leading to a grid interconnection point.

Generation-Tie Line

The proposed Project involves a 500-kV, overhead gen-tie and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at the Pacific Gas & Electric (PG&E) Midway Substation. PG&E will modify the Midway Substation's 500 kV yard, within PG&E's Midway Substation property boundary, to accommodate the proposed

Project's interconnection. The Gen-tie route would be sized up to 500 kV and up to 15 miles in length. The collector lines would be located generally within or adjacent to the proposed Project site and may connect several parcels to a Project substation. Both collector lines and gen-tie alternatives would use up to a 200-foot-wide corridor. The collector lines from the proposed parcel cluster to the main proposed substation would be sized at a voltage ranging from 34.5kV to 500 kV, with 34.5kV and 230 kV being likely voltages. Overhead lines would be mounted on TSPs no taller than 200 feet.

Substation

Output from the inverter stations would be transferred via electrical conductors to one or more on-site substation(s) or switchyard(s) (collectively referred to as a "substation" herein). Underground and/or overhead collector lines would cross I-5 in several locations, depending on the final substation location(s). Each substation may contain several components, including auxiliary power transformers, distribution cabinets, revenue metering systems, microwave transmission towers, and voltage switch gear. Each substation would occupy an area of approximately 10 to 25 acres, secured separately by an additional chain-link fence, and typically located along the perimeter of the proposed Project. The final location(s) would be determined before issuance of building permits.

Equipment at the Project substations would include transformers, bus work, switches, breakers, and all associated equipment required to be compliant with utility-grade interconnection services. The substations would include a small control enclosure (roughly 500 square feet) standing approximately 10 feet tall. The enclosure would be either prefabricated concrete or steel housing with rooms for the voltage switch gear and the metering equipment, a room for the station supply transformer, and a separate control technology room in which the main computer, the intrusion detection system, and the main distribution equipment would be housed. Components of this enclosure (for example, control technology room and intrusion detection system) may alternatively be located at the O&M building(s). **Figure 3-12:** *Representative Example of Typical Substation Design*, depicts a representative example of a typical substation.

PG&E Midway Substation Upgrades

The applicant has submitted interconnection requests to the California Independent System Operator Corporation (CAISO) for the proposed Project that would interconnect to PG&E's Midway Substation. PG&E's Midway Substation is bounded by agricultural fields to the north, south, and east and a recreation/sports field to the west, all in the unincorporated area of Buttonwillow in Kern County.

To accommodate the requests, PG&E proposes to enlarge Midway Substation's 500 kV yard within the PG&E owned Midway Substation property boundaries. The PG&E Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities as part of the proposed Project. To support the proposed Buttonbush Solar and Storage Project's communication infrastructure, PG&E may install two (2) four-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership,

approximately 0.25 miles northwest. This fiber-optic line is critical for the safe and efficient operation of the proposed Project. The fiber-optic line route will be trenched underground from the Midway Substation to the Point of Change of Ownership. It is anticipated that the first conduit path will exit the existing PG&E Midway Substation near the northwest corner of the fence corner, continue west for approximately 300 feet before turning north for approximately 1,400 feet, and then terminate at the Point of Change of Ownership. It is anticipated that the second conduit path will emerge from the substation out of the north fence approximately 160 feet from the northwest corner of the substation, route north for approximately 60 feet before heading west for approximately 500 feet, then turn north for approximately 1,400 feet, and then terminate at the proposed Project Point of Change of Ownership. Minor route modifications may be required at the time of construction due to unanticipated constraints. PG&E will install up to nine underground substructure vaults along the conduit trenches to support pulling the cable, housing excess cable storage, and supporting cable splice locations if required. The approximately 3-foot by 5-foot by 4.5-foot vaults will be installed along each conduit path between the Midway Substation and the Point of Change of Ownership. The trench will be backfilled with a layer of fluidized thermal concrete (red in color) with another layer of a diggable low PSI fluidized thermal backfill.

PG&E proposes to remove the existing precast security wall at the northwest side of the Midway Substation and replace it with a new 12-foot wall, similar in appearance and material, approximately 510 feet north and 140 feet west of the existing walls of the 500 kV yard within Midway Substation. Grading of the connection area may be required and, prior to any ground-disturbing activities, PG&E would acquire all necessary permits. Within the proposed graded area of the Midway Substation, PG&E would install approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker. This would include installing equipment foundations and concrete trenches, equipment cabinets, bus structures, communication lines, conduits, pull boxes, and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, PG&E would install up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from Midway Substation to the Point of Change of Ownership for the proposed Project. Up to four approximately 175-foot-tall lattice steel towers (LST) or tubular steel poles (TSPs) would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads.

PG&E estimates that up to four (4) six-person crews working approximately 10-hour days, six days per week would construct the Midway Substation upgrades. Access would typically be from existing paved or previously disturbed roads; some minor overland travel may be required to install the underground fiber optic line. Equipment typically includes helicopter, crane, drill rig, spool and tensioning rigs, backhoe, grader, concrete truck, typical rubber-wheeled construction vehicles, and miscellaneous hand tools.

Microwave Radio Tower

The proposed Project may require redundant telecommunication connections. If so, the primary telecommunication line would consist of fiber optic cable and/or copper telecommunication line installed above and/or below ground and attached to either existing utility lines located outside of the Project site or within the new gen-tie.

The interconnection utility service would consist of fiber stranded cables (Dielectric Self Supporting and Optical Ground Wire) connected to the substations as part of the standard substation design criteria. Below ground installations would be installed 24 to 48 inches below grade. Above ground lines would be placed below existing distribution lines or on new, adjacent wooden poles. Telecommunication lines also would be attached to the new gen-tie line. A secondary (backup) internet connection would be provided using a similar method for redundant paths. The site also would have internal facility telecommunications that a local provider in the area would provide.

Up to six (6) microwave/communication towers are proposed in six locations within the proposed Project. Separate CUPs are required for each microwave tower location and included in the proposed Project's entitlement request. Each microwave/communication tower consists of up to three(3) 6-foot-high performance microwave dish(es) fixed to a steel monopole of up to 130 feet in height. An approximately 12-feet by 20-feet equipment shelter may also be included within a fenced area. The shelter would have a maximum height of 10 feet. The proposed radio equipment would be within the equipment shelter and connected to the microwave dish(es) via coaxial or fiber optic cables. If the microwave tower is located outside the selected substation footprint, fencing would consist of an up to 6-feet-high chain-link fence with up to three strands of barbed wire (up to 2 feet high), for a total maximum height of eight (8) feet.

Figure 3-12: Representative Examples of Typical Battery Storage Energy Systems



3.6.2 Energy Transport

Generation Transmission Line

Power would be transmitted from the proposed substation(s) to the PG&E Midway Substation via up to 500 kV, overhead and/or underground gen-tie line(s). The preferred and alternative gen-tie alignments are shown in **Figure 3-3:** *Project Aerial.*

Gen-tie alternatives would be sized at up to 500 kV and up to 15 miles in length. Gen-tie alternatives generally would originate from proposed development areas, cross I-5, and route to the southern area of the Project site and then south to the existing PG&E's Midway Substation. The collector lines would be located generally within or adjacent to the Project site and may connect several parcels to a Project substation. Both collector lines and gen-tie alternatives would use up to a 200-foot-wide corridor. The collector lines from the proposed parcel cluster to the main proposed substation would likely be sized at a voltage ranging from 34.5kV to 500 kV, with 34.5kV and 230 kV being likely voltages. Final heights and structure types are subject to change pending final engineering. The proposed Project would require redundant telecommunication connections. The primary telecommunication line would consist of fiber optic cable lines necessary to support the on-site telecommunication equipment. Lines would be located on the same structures used to support the gen-tie line and/or buried.

Overhead lines would be mounted on TSPs no taller than 200 feet. Portions of the gen-tie line and collector lines may be undergrounded to avoid conflict with other existing infrastructure. Kern County may accept Irrevocable Offers of Dedication, or grant a franchise, license, and/or encroachment agreement for portions of the gen-tie and collector lines, while other portions would be sited within private easements. PG&E may change the elevation of existing overhead lines to accommodate gen-tie crossings.

As stated above, construction of the gen-tie line would occur within the transmission line corridor estimated up to 200 feet wide. Pre-construction activities will consist of surveying and marking the structure locations prior to mobilization.

3.6.3 Other Facilities and Site Information

Non-Summary Vacations of Public Access Easements

The Project proponent has requested two non-summary vacations of public access easements within Site 1 and Site 5 of the Project site shown in **Figure 3-13 (A and B):** *Easement Vacation (Site 1 and Site 5*. The purpose of the request is to facilitate the optimal layout of solar panels by removing recorded but unused/undeveloped public rights-of-way on vacant land. In the case where a proposed vacation removes existing, primary access to a parcel, the Project proponent would be required to record a separate, alternative private access easement(s) to restore access to the affected parcel. The proposed private easements would be recorded concurrent with the vacation of the original public easement.

Water Storage Tanks

Plastic or steel above-ground water storage tanks would be placed on-site near the O&M building(s) and BESS. The storage tank(s) near the O&M building(s) and BESS would be sized in accordance with Kern County and fire department requirements and have the appropriate fire department connections to be used for fire suppression purposes.

Operations and Maintenance Building

The proposed Project includes six (6) locations for up to four (4) O&M building(s), each less than 3,600 sf. in size, with associated on-site parking. The O&M building(s) would be steel framed, with metal siding and roof panels. The O&M building(s) may include the following:

- Office
- Repair building/parts storage
- Control room
- Restroom
- Septic tank and leach field

The septic tank and leach field, roads, driveways, and parking lot entrances would be constructed in accordance with Kern County improvement standards. Parking spaces and walkways would be constructed in accordance with all California accessibility regulations. It is expected that the proposed Project could require an operational staff of up to 20 full-time employees. Any unused O&M building areas on-site may be covered by solar panels.

Project Site Security and Fencing

The Project site would be enclosed within a chain-link fence with barbed wire, measuring up to 8 feet in height. The proposed Project may include additional security measures, including, but not limited to: slats or screening material, fencing with warning reflective signage, controlled access points, security alarms, security camera systems, and security guard vehicle patrols to deter trespassing and/or unauthorized activities that could interfere with construction or operation of the proposed Project. Fencing would be adapted prior to the commencement of operations as needed to allow for the movement of wildlife. Following construction, the fencing around the Project site would contain wildlife portals or be elevated to allow for wildlife movement.

Controlled access gates would be maintained at the main entrances to the Project site. Access to the Project site would be provided to offsite emergency response teams that respond in the event of an “after-hours” emergency. Enclosure gates would be manually operated with Knox-boxes containing keys for the proposed facility would be installed to permit emergency access to the site.

Project Site Lighting

Proposed nighttime lighting on-site would be installed at the access gates, substation(s), O&M building(s), and inverters to allow for access and emergency maintenance. Nighttime lighting would provide O&M personnel with illumination for both normal and emergency operating conditions. The level and intensity of lighting would be the minimum needed to ensure worker safety and security. All nighttime lighting installed would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties pursuant to the Kern County Ordinance (Chapter 19.81) - Outdoor Lighting-Dark Skies. Additionally, motion-sensitive cameras would be installed within the solar fields in proximity to the inverters for purposes of security.

Signage

Proposed facility signage installed on the fence in the vicinity of the main entry gates would identify the Project owner, operator, and emergency contacts and provide safety and security information. Signage would be posted at the main entry gates and intermittently along the perimeter fencing on exterior parcel boundaries, to indicate “No Trespassing” and “Private Property” for security and safety purposes. All signage would conform to Kern County signage requirements.

Figure 3-13: (A and B): Easement Vacation

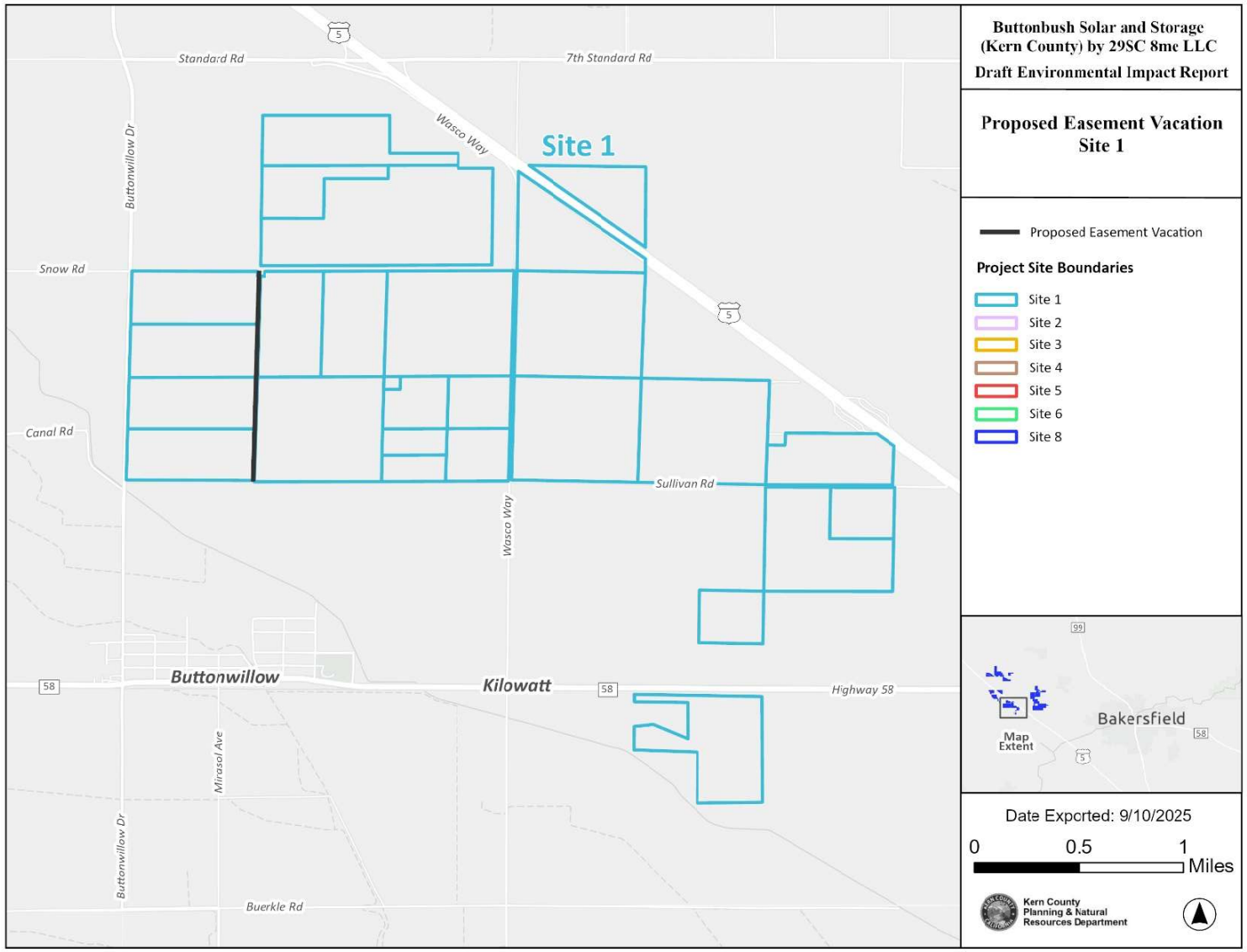
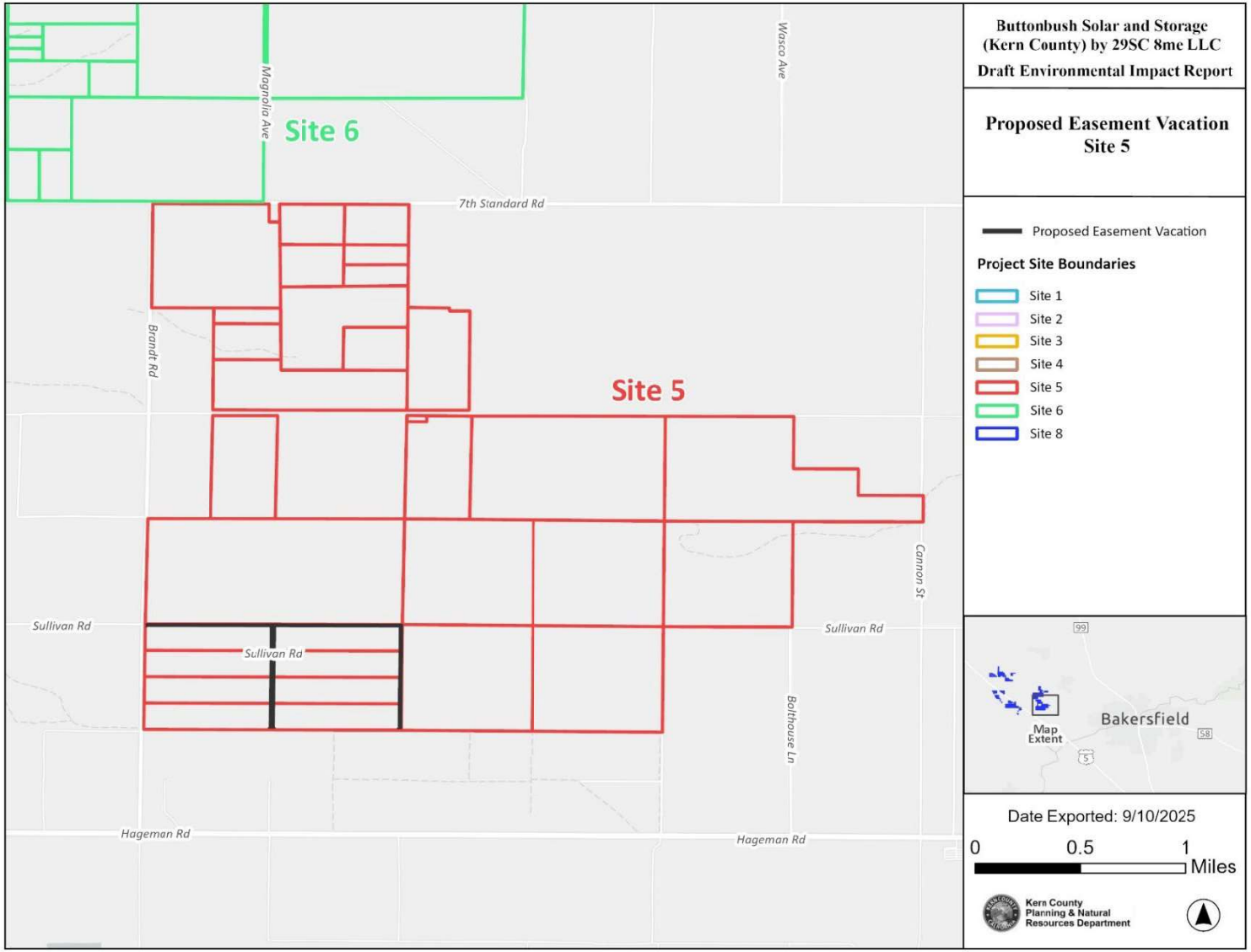


Figure 3-13: Easement Vacation (B)



Construction

3.6.4 Construction Phasing and Equipment

Durations and Workforce

The proposed Project may be implemented in phases as it includes multiple sites, some of which are discontinuous and separated from each other by nonparticipating parcels and roads. Phasing may occur with the development of one or more of the sites simultaneously and could include a combination of any of the sites. The construction period for the proposed Project from site preparation through construction, testing, and commercial operation is expected to be built over the course of up to five years. It is estimated that an average of up to 800 workers per day with up to 1,334 workers during peak construction periods would be required during construction of the proposed Project, which includes the construction workers required for the PG&E Midway Station upgrades. Construction of the proposed Project would include the following activities that are described further below:

- Site preparation
- Access and internal circulation roads
- Removal of existing structures
- Grading and earthwork
- Concrete foundations
- Structural steelwork
- Panel installation
- Electrical/instrumentation work
- Collector line installation
- Stormwater management facilities
- Gen-tie line(s) including the I-5 overhead crossing

The proposed Project would be constructed by several specialized construction contractors, with construction activities taking place as specified in the County's Code of Ordinances, Chapter 8.36, as required to meet the construction schedule. Construction activities are allowable between the hours of 6:00 a.m. and 9:00 p.m. on weekdays and between the hours of 8:00 a.m. and 9:00 p.m. on weekends.

Heavy construction is expected to occur between 7:00 am and 5:00 pm, Monday through Friday. If weekend work is required to make up schedule deficiencies or to complete critical construction activities, it would occur within the allowable hours specified by the County's Noise Ordinance. Some construction-related activities (for example, substation testing) may continue 24 hours per

day over several days as required for safety. Nighttime activities could potentially include, but are not limited to, refueling equipment, staging material for the following day's construction activities, gen-tie crossing, quality assurance/control, and commissioning.

Materials and supplies would be delivered to the Project site by truck. Truck deliveries would normally occur during daylight hours. However, there may be offloading and/or transporting to the Project site on weekends and during the early evening hours. Earthmoving activities are expected to be limited to the construction of the access roads, O&M building(s), substation(s), water storage tank, construction of solar panel foundation supports, BESSs, and any stormwater protection or storage (detention) facilities. Final grading may include revegetation with native plants, low-lying grass, or applying earth-binding materials to disturbed areas.

Construction of the gen-tie line would occur within the transmission line corridor, up to 200 feet wide. Construction of the gen-tie and collector lines may require several limited single-lane closures and limited temporary road closures to allow construction personnel to safely construct the gen-tie and collector lines. No permanent County road closures are proposed. During the erection of the gen-tie line, transmission structure will be picked up from the laydown storage yards at the solar Project site and hauled to various structure sites, unloaded and installed. Foundations will be constructed at each transmission structure location and underground or overhead wires and fiber optic will be installed. During the physical installation, equipment and components may be temporarily located within the single lane shutdown or adjacent to the road during construction. The permanent disturbance associated with the line is limited to the foundation, transmission structures, and underground fiber optic access enclosures. A construction traffic control plan would be developed.

Solar Facility Access

Construction and operation traffic would access the Project site from Wasco Way, Merced Avenue, Lerdo Highway, Rowlee Road, Wildwood Road, Buttonwillow Drive, 7th Standard Road, Snow Road, SR-58, and or Sullivan Road, depending on the specific area within the Project site (Site 1-6 and Site 8) requiring access. Many dirt roads cross the site. Installation of the proposed facilities may include minor improvements to the existing paved roads to install driveways to facilitate the delivery of equipment and personnel to the Project site during construction and operations. Driveways and parking lot entrances would be constructed in accordance with Kern County improvement standards. Any off-site roadway improvements would be constructed in conformance with Caltrans and/or County codes and regulations, as applicable.

Minor road improvement activities, if needed, may include grading, widening, compacting, and/or applying an approved soil stabilizer. In addition, a 20-foot-wide–minimum road is required around the perimeter of the solar arrays for the fire department and emergency vehicles. Additional internal maintenance roads would be located throughout the Project site. Spacing between each row would depend on final panel type, orientation, and any County regulations. Internal roads would be at least 20 feet wide and would be cleared and compacted for equipment and emergency vehicle travel and access to the solar blocks. These Project site access roads would remain in place for ongoing O&M activities after construction is completed. Final service road alignments would depend on the final

placement of the solar panels, topography, and other site-specific details to be incorporated into the final design.

Parking and Traffic

During construction, employees would be encouraged to carpool and park on the Project site. The majority of the workers are assumed to travel from Bakersfield, which is the nearest employment center, to the site. Each site (Sites 1 through 6, and Site 8) at the Project site contains staging/laydown yards. Construction employees would report to the designated construction staging yards prior to the beginning of each workday. The proposed laydown yards will be used as a parking and a meeting area, be used as an equipment staging area, allow for deliveries, and be reclaimed after substantial completion of the proposed Project is reached.

Prior to initiation of construction activities that may affect area traffic (for example, equipment and supply delivery necessitating lane closures and trenching), the applicant would consult Kern County and would implement appropriate traffic controls pursuant to the California Vehicle Code and other State and local requirements.

The proposed Project includes an O&M building(s) with associated permanent on-site parking. The septic tank and leach field, roads, driveways, and parking lot entrances would be constructed in accordance with Kern County improvement standards. Parking spaces and walkways would be constructed in accordance with all California Accessibility Regulations.

Construction Safety

The Project proponent's engineering, procurement, and construction contractor (EPC) would implement measures for worker safety during construction pursuant to California Division of Occupational Safety and Health regulations and guidance and other best management practices. For example, prior to initiation of construction activities, workers would be trained in emergency procedures, fire prevention, and location and proper use of emergency equipment. The training would:

- Provide contact numbers for various local emergency response agencies, including fire, police, and medical services.
- Set forth communication procedures to report potential health hazards and concerns.
- Set forth procedures to reduce the potential for igniting combustible materials by preventing electrical hazards, reducing the use of flammable materials, and reducing smoking on-site during construction and maintenance procedures.
- Direct workers to park away from dry vegetation, equip vehicles with fire extinguishers, and park heavy equipment in designated areas at the end of each workday.
- Direct workers not to smoke except in designated areas.
- Provide direction regarding the use and maintenance of fire extinguishers, shovels, and water to extinguish small fires.

In addition, the proposed Project would comply with Kern County improvement standards involving accessibility and ground clearance of emergency vehicles (for example, fire engines).

These and other safety precautions and emergency systems will be implemented as part of the design and construction of the proposed Project to ensure safe and reliable operation. Administrative controls will include hands-on training in operating and maintenance procedures, general safety items, and a planned maintenance program. These will work with the system design and monitoring features to enhance safety and reliability. The proposed Project will be subject to an Emergency Response Plan (ERP) that will address potential emergencies including chemical releases, fires, and injuries.

Electricity

The temporary office and construction facilities would obtain construction electricity from a temporary drop offline from the local electrical distribution system. Up to 10 portable electrical generators that meet local and State emission controls would be used throughout the proposed Project during construction and operation for electrical needs away from the temporary construction facilities.

Temporary electric power for as-necessary lighting and electronic equipment, such as computers inside temporary construction trailers, would be provided by PG&E via the proposed Project's distribution line or by generators. Any electricity used for such activities would be temporary and substantially less than that required for proposed Project operation.

Up to a 12-kV distribution line would be constructed to provide permanent power to the on-site O&M building(s) and back-up power to the on-site electrical substation(s). The 12-kV distribution line would be installed as an overhead or underground line. If installed as an overhead line, the 12-kV distribution line would include new wood poles. The 12-kV distribution line would extend from the existing PG&E distribution system nearest the site. The 12-kV distribution line is anticipated to be installed by PG&E. The alignment of the 12-kV distribution line and point of interconnection with the on-site O&M buildings and electrical substation(s) is pending PG&E's design and approval.

Water

The majority of the area of the Project sites are currently utilized for agricultural use. Crop cultivation and associated irrigation water delivery have occurred and currently occur on the Project site. Water use has entailed groundwater from private wells on the site, as well as water purchased from local districts.

Semitropic Water Storage District (SWSD) has agreed to supply water for the proposed Project. The water would be delivered at district turnouts on the site via SWSD's existing water infrastructure network. Additional water may be obtained from alternative water districts, new or existing onsite wells, or one or more off-site source(s) and delivered to the site via truck.

The proposed Project requires substantially less water than active farmland and would utilize up to 3,500 acre-feet (AF) of water to support construction activities. Potable water for drinking and similar needs during construction would be trucked in from off-site (for example, bottled water). Temporary, portable water tanks may be placed on-site to store water for construction purposes. Construction water would be primarily used for dust suppression, soil compaction, concrete hydration, and other miscellaneous activities requiring non-potable water during construction. The proposed Project may use mulch that could result in the reduction of water usage for dust control. Portable restroom facilities would be provided to the workers during construction.

Diesel-Powered Equipment

In addition to standard dust control features, the proposed Project applicant would implement standard measures to reduce tailpipe emissions from diesel-powered construction equipment pursuant to SJVAPCD Guidance for Assessing and Mitigating Air Quality Impacts. This requirement would be incorporated into the construction contracts for all contractors and the portions of the proposed Project on which they would be working.

3.6.5 Site Preparation and Grading Activities

Site preparation activities include halting agricultural activities (see Appendix L) removing existing buildings and structures (for example, single residential dwelling, dairy, associated agricultural infrastructure), surveying and staking, installing security fencing, wildlife exclusion fencing, completing preconstruction clearance surveys, preparing and constructing site access roads, establishing temporary construction trailers and sanitary facilities, and preparing construction staging areas. Mobilization would include bringing construction equipment to the sites prior to start of construction.

The proposed Project requires the removal and closure of a dairy (Site 6), and all associated existing structures. The property contains several agricultural water supply wells, a milking facility, several cattle corrals, a feed area, and cattle waste management areas (Appendix L). There are four settling ponds that facilitate the separation of liquid and solid waste from the feed corral lanes, resulting in removal of approximately 80 to 90 percent of the solids. The liquid waste is then directed into a holding lagoon for the eventual irrigation of feed crops. Animal waste is stockpiled and is either applied to adjacent fields and cropland for nutrient recycling or composted on site and distributed to other farmers. The removal of the dairy and these components could impact water quality and air quality and requires a full closure plan, to ensure the site be restored to pre-operation conditions (Appendix L). The dairy would continue to comply with its existing permits until full closure, including, but not limited to Waste Discharge Requirements (WDRs), Central Valley Regional Water Quality Control Board Regulations for Confined Animal Facility (17 CCR 22560), General Order for Confined Animal Facilities Reissued WDR General Order for Existing Milk Cow Dairies (Order No. R5-2013-0122), WDR Program for Dairy Manure Digester and Co-Digester Facilities (Order No. R5-2010-0116), and SJVAPCD and Certified Unified Program Agency requirements. These closure requirements follow the provisions of the State Antidegradation Policy (State Water Resources Control Board Resolution No. 68-16). This process helps ensure the protection of

California's water resources during and after the cessation of dairy operations and all details are included in Appendix L.

The proposed Project site is nearly level from existing and continuous agricultural use. Thus, earthmoving activities are expected to be limited to the construction of the access road improvements, interior access roads, O&M building(s) and septic field, substation(s), water storage tanks, construction of solar panel foundation supports and related infrastructure, BESSs, transmission tower foundations, microwave towers, construction laydown yards and any stormwater protection or storage (detention) facilities. The site cut and fill would be balanced on-site and given the relatively flat nature of the Project site, grading is anticipated to be minimized in many areas of the site. Sediment and erosion controls would be installed in accordance with an approved Storm Water Pollution Prevention Plan (SWPPP). Stabilized construction entrances and exits would also be installed at the Project entrance driveways to ensure that potential for tracking of sediment onto adjacent public roadways is minimized. Final grading may include revegetation with native plants, low-lying grass, or applying earth-binding materials to disturbed areas.

Vegetation would be allowed to re-grow within the solar panel field to the extent that it does not interfere with the panels themselves, by growing into electrical connections and creating a fire hazard or disrupting the panel's performance. Vegetation height will be limited (if required) to comply with Kern County Fire Department requirements. The access roads would be kept clear of vegetation through targeted herbicide spraying, occasional scarifying, or weeding to reduce fire hazard and allow access to the panel arrays.

Dust Control

The Project applicant would implement standard fugitive dust control measures during all dust generating construction and ground disturbance activities (for example, grading and trenching). The dust control measures would comply with the SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts that include, but are not limited to:

- Watering active construction sites with the frequency of watering based on the type of operation, soil, and wind exposure.
- Stabilizing dust emissions at disturbed areas, including storage piles that are not actively utilized for construction purposes, using water or other approved substances.
- Prohibiting grading activities during periods of high wind (over 20 miles per hour).
- Limiting vehicle speed on-site to minimize dust emissions on unpaved driveways (15 miles per hour).
- Covering trucks hauling dirt, sand, or loose materials.
- Posting a publicly visible sign with the telephone number and person to contact regarding dust complaints. The contact would respond and take corrective actions within 48 hours. The phone number of the SJVAPCD also would be visible to ensure compliance with rules regarding nuisance and fugitive dust emissions.

Storm Water Protection

Because construction of the proposed Project would disturb greater than one acre of surface area, the Project applicant would be required to obtain coverage under the State Water Resources Control Board (SWRCB) Construction General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (2012-0006-DWQ). As a standard requirement for enrolling under this permit, a SWPPP that details Project information, monitoring and reporting procedures, and best management practices (BMPs) (for example, dewatering procedures, storm water runoff quality control measures, and concrete waste management) as necessary would be prepared for the proposed project. A SWPPP has not been prepared but would be designed based on final engineering plans and would require approval from the County prior to issuance of grading and/or building permits. The applicant would submit a Notice of Intent to the State Board to initiate coverage under the Construction General Permit.

Solid Waste

Inert solid wastes resulting from construction activities may include recyclable items such as paper, cardboard, solid concrete and block, metals, wire, glass, type 1-4 plastics, drywall, wood, and lubricating oils. Non-recyclable items include insulation, other plastics, food waste, vinyl flooring and base, carpeting, paint containers, packing materials, and other construction wastes. A Construction Waste Management Plan would be prepared for review by the County. Consistent with local regulations and the California Green Building Code, the Plan would provide for the diversion of a minimum of 50 percent of construction waste from landfills.

Any wastes classified as hazardous such as solvents, degreasing agents, concrete curing compounds, paints, adhesives, chemicals, or chemical containers would be stored (in an approved storage facility/shed/structure) and disposed of as required by local and state regulations. Hazardous wastes exceeding threshold quantities (one 55-gallon drum) are not expected.

A contract would be executed with a waste hauling company to ensure removal of landfill material from the site. Waste containers would be spread over work areas for workers to utilize and would include separate containers for trash and recyclable materials. Workers also would be trained to make regular sweeps to ensure the worksite is clean and safe.

3.7 Operational and Maintenance Activities

When Project operations commence, the proposed Project would be maintained by up to 20 permanent staff employees and monitored via a Supervisory Control and Data Acquisition (SCADA) system. On-site maintenance staff would be responsible for security, vegetation management, permit compliance, and Project repairs. Maintenance would include the following:

- Cleaning of PV panels
- Monitoring electricity generation
- Providing site security

- Facility maintenance – replacing or repairing inverters, wiring, and PV modules
- Maintaining an inventory of spare parts to ensure timely repairs and consistent plant output
- Vegetation management and road maintenance
- Monitoring of BESS equipment and control systems
- Utility coordination

The proposed facilities are anticipated to be operational and productive over a period of 35 years. The proposed facilities would operate seven days a week, with daily monitoring and maintenance activities, both planned and unplanned, taking place during daytime and nighttime hours. Personnel would largely work in the O&M building monitoring the system's performance and performing system production forecasting. Personnel would access equipment within the Project site for operational adjustments or minor repairs. Personnel would use light to medium duty trucks and all-terrain vehicles for traversing the Project site along fire access roads.

Planned and unplanned maintenance would occur daily and/or as needed during daytime and nighttime hours, throughout the lifetime of the proposed Project. Planned maintenance activities would include routine inspection, repair, restoration, replacement or repair, washing solar panels, security surveys and actions, and modification work on proposed Project equipment and facilities. Unplanned maintenance activities would be required due to unexpected damage to, or failure of, equipment or facilities.

Forced outage situations, where the proposed facilities have unexpectedly stopped normal operations, could occur during the O&M period requiring immediate action. Forced outages consist of unexpected failures in proposed Project equipment or facilities, which require immediate inspection, repair, restoration, replacement, and/or modification. Forced outage conditions consist of urgent or emergency-type work where potential for harm to persons, property, or the environment exists and requires expedited action to remedy the situation to avoid such risks.

During operation of the proposed Project, inspections, testing, maintenance, and repairs would be performed on a continual basis, with most activities occurring once or twice per year for each tracker or major piece of equipment. Specific activities for inspection and preventive maintenance would include the following:

- System testing to ensure peak performance.
- Inspecting array mechanical components, PV mounting systems, and PV modules.
- Inspecting AC and DC electrical components, including conductors, conduit, connectors, fused and unfused disconnects, and switchgear.
- Inspecting battery components.
- Inspecting tracker control enclosures and components.
- Inspecting inverters and cleaning of fans and enclosures.
- Lubrication of worm gear annually.

- Testing DC array circuits.
- Inspecting electrical terminations and mechanical connections for proper torque throughout the system.
- Meter reading.

Routine system maintenance would include tightening of loose electrical connections, tightening ground connections, replacement of defective modules found during testing, other minor maintenance, and repair work. Routine system maintenance that would periodically occur during operation include:

- Replacement of broken or non-functioning PV panels.
- Tracker troubleshooting and repair.
- DC and AC circuit troubleshooting and repair, including fault situations.
- Monitoring equipment and sensor troubleshooting and repair.
- System troubleshooting and repair in the field and in the O&M building.
- Warranty repairs, retrofits, or replacements.

Maintenance or repair of proposed Project panels, equipment, and facilities would occur on an as needed basis when deterioration of parts or damage occurs or retrofitting becomes necessary. Supporting facilities and structures such as the O&M building, security system, fencing (around the array area and proposed substation), and parking areas would likely require occasional corrective maintenance or repair. The electrical transmission facilities including the proposed substation, medium voltage overhead lines, and gen-tie may also need corrective repair or corrective maintenance and would be monitored to ensure safe functionality.

Schedule and Workforce

During the operational phase, the proposed Project would employ up to 20 full-time equivalent (FTE) personnel who would commute to the site.

The facility would operate seven days a week, 24 hours a day, generating electricity during normal daylight hours when the solar energy is available. Maintenance activities are anticipated to occur during normal business hours; however, emergency maintenance may occur outside these timeframes to ensure ESS output and PV panel output when solar energy is available.

Operational Water Usage

The applicant estimates that approximately seven (7) acre-feet per year (AFY) of water would be used for panel washing, fire suppression, and O&M domestic use (for example, lavatories, dust suppression, and drinking). Plastic or steel above-ground water storage tanks may be placed on-site near the O&M building(s) and or the BESS. The storage tank(s) near the O&M building(s) and or BESS would be sized in accordance with Kern County and fire department requirements and have the appropriate fire department connections to be used for fire suppression purposes.

As noted above, water would be obtained from on-site wells or delivered via truck from an off-site source(s) within the Project vicinity. SWSD has agreed to supply water for the proposed Project. The water would be delivered at district turnouts on the Project site via SWSD's existing water infrastructure network. Additional water may be obtained from new or existing onsite wells.

Electrical Supply

Either electricity produced from the proposed facilities or a local power provider would provide auxiliary power. The proposed Project would require power for the O&M facilities, electrical enclosures, tracker motors, associated structures, and for lighting and security.

3.8 Project Features and Best Management Practices

The following describes standard Project features and BMPs that would be applied during construction and long-term operation of the proposed Project to maintain safety and minimize or avoid environmental impacts.

Hazardous Waste and Hazardous Materials Management

The proposed Project would include the use and/or storage of materials on-site that are defined as hazardous under 40 Code of Federal Regulations, Part 261. Materials such as the following would be used during the construction, operation, and long-term maintenance of the proposed Project:

- Diesel fuel, gasoline, and motor oil– used for electrical equipment
- Mineral oil - to be sealed within the transformers
- Various solvents/detergents – equipment cleaning
- Lubricating oil – used for maintenance vehicles

Hazardous materials and wastes will be managed, used, handled, stored, and transported in accordance with applicable local and State regulations. All hazardous wastes will be maintained at quantities below the threshold requiring a Hazardous Material Business Plan (HMBP) (one 55-gallon drum). Though not expected, should any on-site storage of hazardous materials exceed one 55-gallon drum, an HMMP would be prepared and implemented.

Any wastes classified as hazardous such as solvents, degreasing agents, concrete curing compounds, paints, adhesives, chemicals, or chemical containers would be stored (in an approved storage facility/shed/structure) and disposed as required by local and State regulations. Material quantities of hazardous wastes are not proposed or anticipated to be used.

Non-Hazardous Wastes/Inert Solids

Inert solid wastes resulting from construction activities may include recyclable items such as paper, cardboard, solid concrete and block, metals, wire, glass, type one through four plastics, drywall, wood, and lubricating oils. Non-recyclable items would include insulation, other plastics, food

waste, vinyl flooring and base, carpeting, paint containers, packing materials, and other construction wastes. A Construction Waste Management Plan would be prepared for the County's review. Consistent with local regulations and the California Green Building Code, the Construction Waste Management Plan would provide for diversion of a minimum of 50 percent of construction waste from landfills.

Spill Prevention and Containment

Spill prevention and containment for construction and operation of the proposed Project would adhere to the Environmental Protection Agency's (EPA) guidance on Spill Prevention Control and Countermeasures (SPCC).

Wastewater/Septic System

A standard on-site septic tank and leach field would be used at the O&M building(s) to dispose of sanitary wastewater from sinks and lavatories, designed to meet operation and maintenance guidelines required by Kern County laws, ordinances, regulations, and standards. The septic system and leach field would be sized according to the number of employees.

Health and Safety

The Project proponent would adhere to all Kern County improvement standards to ensure accessibility for emergency vehicles and safe operation during construction and proposed Project operations. The Project proponent would implement measures for worker safety during construction in accordance with California Division of Occupational Safety and Health (CalOSHA) regulations and guidance and other BMPs. The proposed Project would be subject to an Emergency Response Plan (ERP) that would address potential emergencies including chemical releases, fires, and injuries. All employees would be provided with communication devices, cell phones, or walkie-talkies, to provide aid in the event of an emergency.

The proposed Project includes safety training for construction workers and operational personnel. This would include both classroom and hands-on training in operating and maintenance procedures, general safety items, and the planned maintenance program. Training would include emergency procedures, fire prevention, and discussion of the location and proper use of emergency equipment. In addition, contact numbers for various local emergency response agencies, including fire, police, and medical services would be provided, and instruction for communication procedures to report potential health hazards and concerns would be a part of the training.

As discussed above, these safety precautions and emergency systems would be implemented as part of design, construction, operation, and maintenance of the proposed Project to ensure safe and reliable operation.

3.9 Decommissioning

The proposed solar equipment is estimated to have a lifespan of over 35 years with regular maintenance intervals. Upon completion of the proposed Project's operational term, the Project operator may, at its discretion, continue to generate and sell power from the proposed Project or decommission and remove the system and its components. If any portion of the Project site is decommissioned, it would be converted to other uses in accordance with the applicable land use regulations in effect at that time.

It is anticipated that during Project decommissioning, Project structures that would not be needed for subsequent use would be removed from the Project site. Above-ground equipment that may be removed would include module posts and support structures, on-site transmission poles that are not shared with third parties and the overhead collection system within the Project site, inverters, substation(s), transformers, electrical wiring, equipment on the inverter pads, and related equipment and concrete pads.

Equipment would be de-energized before removal, salvaged (where possible), and shipped off-site to be recycled or disposed at an appropriately licensed disposal facility. Once the solar modules are removed, the racks would be disassembled, and the structures supporting the racks would be removed. Site infrastructure including fences, concrete pads that may support the inverters, transformers, and related equipment, would be removed. The demolition debris and removed equipment may be cut or dismantled into pieces that can be safely lifted or carried by standard construction equipment. The fencing and gates would be removed, and all materials would be recycled to the extent practical. Proposed Project roads would be restored to their pre-construction function unless they may be used for subsequent land use. The area would be thoroughly cleaned, and all debris would be removed. Materials would be recycled to the extent feasible, with the remainder disposed in landfills in compliance with all applicable laws.

Temporary erosion and sedimentation control BMPs would be used during the proposed Project's decommissioning phase.

3.10 Entitlements Required

The Kern County Planning and Natural Resources Department as the lead agency (per the CEQA Guidelines Section 15052) for the proposed Project has staff responsibility for the preparation of the EIR and recommendations to the decision makers for the proposed Project. To implement the proposed Project, the project Proponent may need to obtain discretionary and ministerial entitlements including, but not limited to, the following:

Federal

- U.S. Fish and Wildlife Service (USFWS) Section 10 Incidental Take Permit and Habitat Conservation Plan (if required)

- United States Army Corps of Engineers Section 404 Permit (if required)

State

- California Public Utilities Commission (CPUC)
  - Approval under General Order 131-E (if required)
- California Department of Fish and Wildlife (CDFW)
  - Section 1600 et seq. permits (Lake and Streambed Alteration Agreements) (if required)
  - Section 2081 Permit (State-listed or candidate species) (if required)
- Central Valley Water Quality Control Board (RWQCB)
  - Waste Discharge Requirements (if required)
  - Regional Water Quality Certification (401 Permit) (if required)
  - National Pollution Discharge Elimination System (NPDES) Construction General Permit
  - General Construction Stormwater Permit (Preparation of a SWPPP)
- California Department of Transportation (Caltrans)
  - Right-of-Way Encroachment Permit (if required)
  - Permit for Transport of Oversized Loads
  - Crossing consents for I-5 gen-tie crossing (if required)
  - Crossing consents for SR 58 gen-tie crossing (if required)

Local

- Kern County
  - Certification of Final EIR
  - Adoption of CEQA Guidelines Sections 15091 Findings of Fact and 15093 Statement of Overriding Considerations
  - Adoption of Mitigation Monitoring and Reporting Program
  - Approval of Conditional Use Permits to allow for the construction and operation of a commercial-scale solar facility within A (Exclusive Agriculture) Zone District.
  - Approval of Conditional Use Permits to allow for the construction and operation of microwave towers within A (Exclusive Agriculture) Zone District
  - Approval of Kern County General Plan and Buttonwillow Development Specific Plan Amendment (Circulation Element)
  - Approval of Williamson Act Land Use Contract and Farmland Security Zone Contract cancellations for approximately 10,689 acres

- Approval of Grading Permits
- Approval of Kern County Building Permits
- Approval of Franchise Agreement(s)
- Approval of Kern County Access Road Design and Encroachment Permits
- Approval of Fire Safety Plan
- Approval of proposed non-summary public access easement vacations
- Approval of Demolition permits and site remediation for Dairy Removal
- San Joaquin Valley Air Pollution Control District
  - Approval of Fugitive Dust Control Plan/ ISR 9510
  - Authority to Construct (ATC)
  - Permit to Operate (PTO)

The preceding discretionary actions/approvals are potentially required and do not necessarily represent a comprehensive list of all possible discretionary permits/approvals required. Other additional permits or approvals from responsible agencies may be required for the proposed Project.

3.11 Cumulative Projects

CEQA requires that an EIR evaluate cumulative impacts. Cumulative impacts are the project's impacts combined with the impacts of other related past, present, and reasonably foreseeable future projects. As set forth in the CEQA Guidelines (Section 15130(b)), the discussion of cumulative impacts must reflect the severity of the impacts, as well as the likelihood of their occurrence; however, the discussion need not be as detailed as the discussion of environmental impacts attributable to the project alone. As stated in CEQA, Public Resources Code, Section 21083(b)(2), "a project may have a significant effect on the environment if the possible effects of a project are individually limited but cumulatively considerable."

According to the CEQA Guidelines (Section 15355):

> *Cumulative impacts refer to two or more individual effects, which, when considered together, are considerable and which compound or increase other environmental impacts.*
>
> *(a) The individual effects may be changes resulting from a single project or a number of separate projects.*
>
> *(b) The cumulative impact from several projects is the change in the environment, which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time*.

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

Cumulative impact discussions for each environmental topic area are provided at the end of each analysis contained within Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*, under "Impacts and Mitigation Measures." As previously stated, and as set forth in the CEQA Guidelines, related projects consist of "closely related past, present, and reasonably foreseeable probable future projects that would likely result in similar impacts and are located in the same geographic area" (Ibid, Section 15355).

Cumulative effects are assessed in a different way for each environmental topic. For example, the SJVAPCD requires use of a one-mile radius to identify the cumulative effects of hazardous air pollutant emissions and most odor sources. The SJVAPCD also recommends a one-mile limit for the area of analysis regarding hazardous air pollutants because such emissions primarily affect individuals that reside or work within the immediate vicinity (one mile) of the emissions source. However, the Kern County Planning and Natural Resources Department's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* requires a six-mile radius to assess cumulative impacts because developments in rural areas tend to affect a larger geographical area than developments located in urban areas. Kern County, City of Shafter, and City of Wasco files were reviewed to determine the number of permitted or planned projects within the six-mile radius.

The cumulative analysis in Chapter 4, *Environmental Analysis*, of this Draft EIR evaluates the combined effects of the projects located within a six-mile radius of the Project site, except where other approaches are appropriate (for example, use of a larger radius, or inclusion of specific projects that are outside of the selected radius given their potential to contribute substantially to the cumulative impact that is being analyzed). Projects that are planned but have not been submitted for review by Kern County, the City of Shafter, or the City of Wasco are not included in this analysis because insufficient information is available to produce an analysis of cumulative effects.

The KCGP and Buttonwillow Community Development Plan (Specific Plan) are the primary guides for land development in the vicinity of the proposed Project. The Land Use, Open Space, and Conservation Element of the KCGP assumes continued growth in commercial and industrial development similar to the current growth rate and anticipates the future growth rate would parallel the future residential growth rate in the unincorporated areas of the County.

There are 25 cumulative projects within a 6-mile radius of the proposed Project, as identified in **Table 3-5:** *Cumulative Projects List*, and illustrated in **Figure 3-14:** *Cumulative Projects Map*. These projects were considered when analyzing cumulative conditions and impacts.

Table 3-5: Cumulative Projects

Map No. & Project Name/Case Number	Project Location	Project	Zone Map	Section/ Township/Range	Approx. Acreages
Cumulative Projects within a One-Mile Radius					
1. 23-00916	Approximately 300 feet west of Lerdo Highway and Rowlee Road	CUP for RV Park	77	Sec 10/ T 28 S/ R 23 E	17.49
2. 20-01432 Winston Solar	On the eastern corner of Wildwood Road and 7th Standard Road	CUP to construct and operate a 200 MW solar and battery storage facility with associated electrical interconnection facilities.	77, 98, & 99	Sec 25 / T 28 S/ R 23 E; Sec 36/ T 28 S/ R 23 E; Sec 1/ T 29 S/ R 23 E; Sec 6/ T 29 S/ R 24 E	1,350
3. 19-00732	On 7th Standard Road, approximately 0.5 miles east of Tracy Avenue and Seventh Standard Road	CUP to construct and operate a Biogas Upgrading Facility to receive biogas from nearby dairy digesters for the production of RNG. The proposed Project also includes installation and operation of a gas meter set assembly (MSA) or point of receipt, gas pipeline extension, and any additional ancillary facilities required to connect to a local existing natural gas pipeline system.	99	Sec 4/ T 29 S/ R 24 E	240
4. 22-01114 Cal Centre Warehouse Development	Located on Buttonwillow Drive, approximately 600 feet from Buttonwillow Drive. and Rudnick Road	GPA, ZCC, CUP, PD - Cal Centre Warehouse Development	77	Sec 35/ T 28 S/ R 23 E	18.69
Cumulative Projects within a Six-Mile Radius					
5. 20-00538	24586 Lerdo Highway, Bakersfield	PD plan for a commercial development to include a 5,520-square-foot convenience store and auto service station with fuel canopy.	77	Sec 7/ T 28 S/ R 23 E	6.69-acre lot
6. 20-01376	20672 Tracy Avenue, Buttonwillow	PD to change the use from restaurant to Truck Fueling Station	99-16	Sec 16/ T 29 S/ R 24 E	0.8

Table 3-5: Cumulative Projects

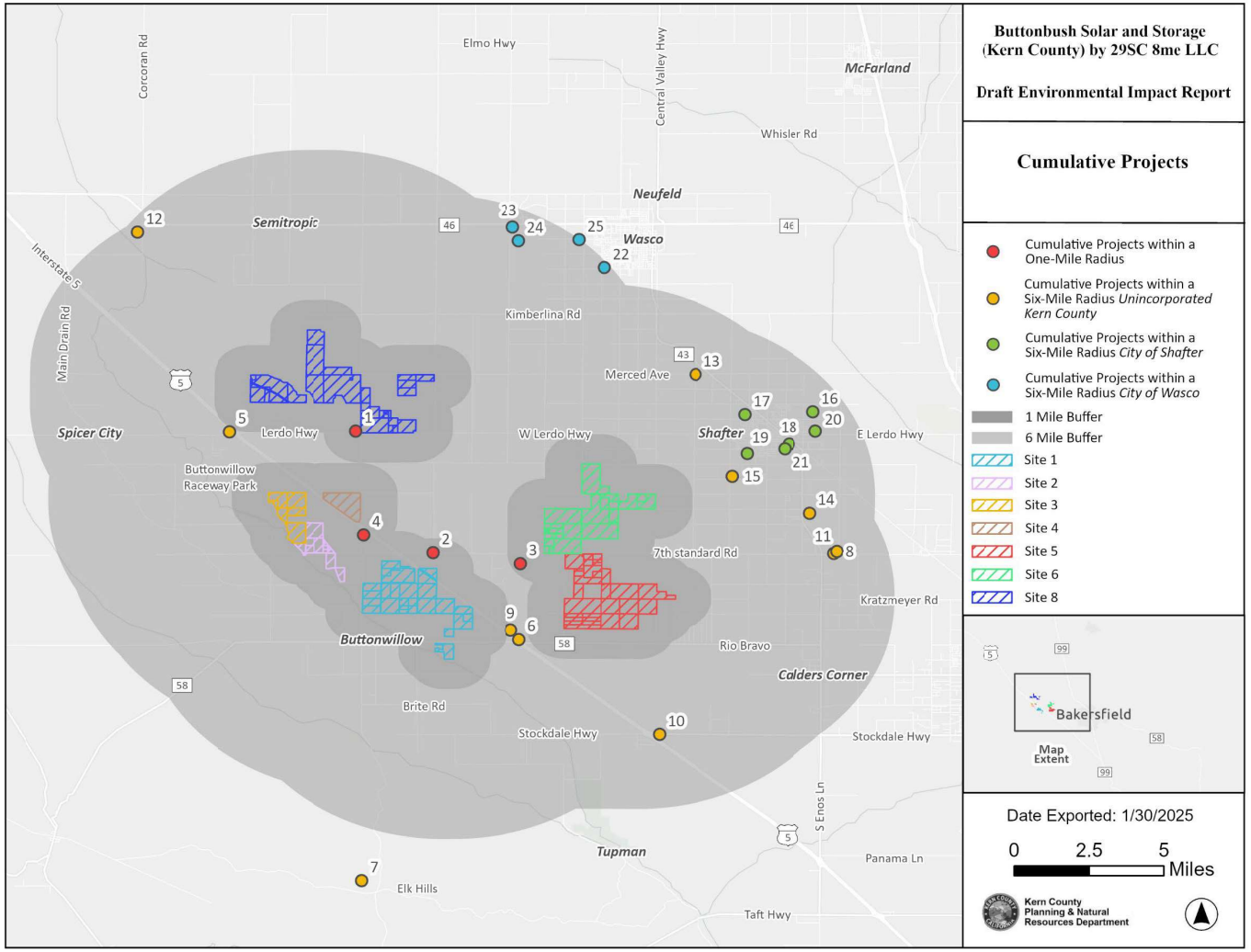
Map No. & Project Name/Case Number	Project Location	Project	Zone Map	Section/ Township/Range	Approx. Acreages
7. 21-01378 Carbon Terra Vault I, LLC	Elk Hills oilfield, west of Elk Hills Road and north of Skyline Road.	CUP to allow a carbon capture and sequestration facility for permanent underground storage	118, 119, 120, 138	Mult/ T 30 S/ R 23 E; Mult/ T 30 S/ R 22 E; Sec 30-31/ T 30 S/ R 24 E; Sec 1/ T 31 S/ R 23 E	9,104
8. 22-00034	7th Standard Road and Cherry Avenue, adjacent to Shafter city limits	A Precise Development Plan to construct a 1-story, 14,280-square-foot metal building warehouse and a 6,700-square-foot 2-story office building) on two (2) parcels of record totaling an approximate 3.57 acres in the M-2 PD (Medium Industrial - Precise Development Combining) District	79-35	Sec 35/ T 28 S/ R 25 E	3.57
9. 23-00747 HD Holding International LLC	Approximately 500 feet north of Tracy Avenue and Willow Drive	PD Plan for truck stop	99	Sec 16/ T 29 S/ R 24 E	7.94
10. 22-00035	On the corner of Stoner Drive and Stockdale Highway	PD to construct a convenience store with gas service pumps	121	Sec 6/ T 30 S/ R 25 E	0.64
11. 22-00045	Northwest corner of Cherry Avenue and Denbeste Court	PD for a trucking facility	79	Sec 35/ T 28 S/ R 25 E	3.82
12. 21-00041 Shafter Solar	On the southeastern corner of Merced Avenue and Scaroni Avenue	CUP for a solar facility	79	Sec 5 T 28 S/ R 25 E	18.38
13. 22-00093 Flying Goose Solar	On the southwest corner of Corcoran Road and Kurt Road.	CUP to develop a photovoltaic facility and associated infrastructure necessary to generate a combined 3,000kW of renewable electrical energy with future battery energy storage.	53	Sec 10/ T 27 S/ R 22 E	40
14. 22-00262	Approximately 700 feet east of the corner of San Diego Street and Beech Avenue	PD - Plan to permit a 300-space general trucking facility and cargo container storage distribution facility.	79-26	Sec 26/ T 28 S/ R 25 E	20
15. 23-00937	18478 Polar Avenue, Shafter	CUP for ag trucking facility and	79	Sec 21/ T 28 S/ R25 E	4.8

Table 3-5: Cumulative Projects

Map No. & Project Name/Case Number	Project Location	Project	Zone Map	Section/ Township/Range	Approx. Acreages
		Cargo Containers			
City of Shafter					
16. Tract 6614	Northeast corner of E. Tulare Avenue and Beech Avenue	Final Map for 431 lots	79	Sec 11/ T 28 S/ R 25 E	140.3
17. Tract 7318	Northwest corner of W. Tulare Avenue and Mettler Avenue	Final Map for 158 lots	79	Sec 9 / T 28 S/R 25 E	39.3
18. Tract 6490	Northeast corner of E. Los Angeles Avenue and S. Mannel Avenue	Final Map for 440 lots	79	Sec 11 / T 28 S / R 25 E	140
19. Tract 6713	Northwest corner of Elizabeth Avenue and Elmendorf Court	Final Map for 28 lots	N/A	Sec 16 / T 28 S/ R 25 E	9.8
20. GPA 24-40 & ZC 24-73	Northwest corner of E. Lerdo Highway and Golds Avenue	Change from E to R-1	79	Sec 11/ T 28 S/ R 25 E	40.6
21. GPA 23-39 & 23-72	Northwest corner of E. Los Angeles Avenue and S. Mannel Avenue.	Change from R-1 to R-3	79	Sec 15 / T 28 S / R 25 E	8.7
City of Wasco					
22. Central Park	1990 Central Avenue	New Park	55	Sec 55/ T 27 S/ R 24 E	2
23. CNG Station	15200 Scofield Avenue	Compressed Natural Gas Station Installation	55	Sec 9/ T 27 S/ R 24 E	13.15
24. Prison Ranch Solar Farm	1990 Scofield Avenue	Solar Commercial Ground Mounted: V System to offset onsite usage	55	Sec 9/ T 27 S/ R 24 E	1.2
25. Wasco Union High School District Ag Farm and MOT Relocation	3717 7th Street	Wasco Union High School District Ag Farm and MOT Building (Maintenance, Operations, and Transportation) Relocation	55	Sec 10/ T 27 S/ R 24 E	7.24

Key: CUP = Conditional Use Permit; EIR = environmental impact report; GPA= General Plan Amendment; I-5 = Interstate 5; PD = Precise Development; PR = press release; SR = State Route; ZCC = Zoning Code Change

Figure 3-14: Cumulative Projects Map



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Chapter 4

Environmental Setting, Impacts, and Mitigation Measures

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Section 4.1

Aesthetics and Visual Resources

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Section 4.1
Aesthetics and Visual Resources

4.1.1 Introduction

This section of the Draft Environmental Impact Report describes the affected environment and regulatory setting regarding aesthetics and visual resources. It also evaluates the impacts associated with the proposed Buttonbush Solar and Storage Project (proposed Project) on the visual character and quality of its surroundings through changes in the existing landscape. Potential effects are evaluated relative to important visual features (for example, scenic highways and scenic features) of the existing visual landscape from public viewing locations. Because a person's reaction and attachment to a given viewshed are subjective, visual changes affect viewers differently. Accordingly, aesthetics analysis, or visual resource analysis, is a systematic process to assess visible change in the physical environment and the anticipated viewer response to that change. This section describes this change by evaluating the existing landscape of the Project site, views of the surrounding area, and visual characteristics using the factors described above and the methodology described in detail below. This section also identifies mitigation measures that would reduce these impacts, if necessary.

This section is informed by the April 2025 visual simulations prepared by WSP, shown in Section 4.1.4, *Impacts and Mitigation Measures*, as these illustrate various representative views of the of the Project site before and after buildout of the proposed Project. This section is also informed by Google Street View™ images, to display a representative view of the Project site in its current state.

Visual Concepts and Terminology

Visual or aesthetic resources are generally defined as both the natural and built features of the landscape that contribute to the public's experience and appreciation of the environment. Depending on the extent to which a project's presence would alter the perceived visual quality of the environment, a visual or aesthetic impact may occur.

The following terms and concepts are used in the discussion below to describe and assess the aesthetic setting and impacts from the proposed Project:

Key Observation Point (KOP): One or more points on a travel route or at a sensitive use area, where the view of a project would be the most revealing.

Scenic Vista: An area identified or known for its high scenic quality. Scenic vistas may be designated by a federal, State, or local agency. Scenic vistas are characterized as a viewpoint, typically accessible by the public, that involves expansive views of nonanthropogenic features such as unique geological formations, rugged coastlines, or other unique features that contribute to the character and enjoyment of a place.

Scenic Highway: Any stretch of public roadway that is designated as a scenic corridor by a federal, state, or local agency.

Sensitive Receptors or Sensitive Viewpoints: Viewer responses to visual settings are inferred from a variety of factors, including distance and viewing angle, type of viewers, number of viewers, duration of view, and viewer activities. The viewer type and associated viewer sensitivity are distinguished among project viewers in recreational, residential, commercial, military, and industrial areas. Viewer activities can range from a circumstance that encourages a viewer to observe the surroundings more closely (such as recreational activities), to discouraging close observation (such as commuting in heavy traffic). Residential viewers typically have extended viewing periods and are generally considered to have high visual sensitivity. For this reason, residential views are typically considered sensitive. Viewers from public parks, recreational trails, and/or culturally important sites also have high visual sensitivities; therefore, such locations are considered sensitive viewpoints. Viewers in commercial, military, and industrial areas are not typically focused on the views and the areas do not promote enjoyment of views; therefore, viewers in these locations are assumed to have low sensitivity.

Viewing Distance Zones: Three areas of a landscape differentiated by their relative visibility from travel routes or observation points. The three zones are: foreground, middle ground, and background. The foreground zone includes areas less than 0.25 mile away, the middle ground zone includes areas 0.25 mile to 3 miles away, and the background zone includes areas beyond 3 miles (FHWA 2015).

Viewing distances affect the visual sensitivity of a landscape. The same feature of a project can be perceived differently by people depending on the distance between the observer and the viewed object. When a viewer is closer to a viewed object in the landscape, more detail can be seen, and there is greater potential influence of the object on visual quality because of its form or scale (relative size of the object in relation to the viewer). When the same viewed object is viewed at background distances, details may be imperceptible but overall forms of terrain and vegetation are evident, and the horizon and skyline are dominant. In the middle ground, some detail is evident in the foreground and landscape elements are seen in context with landforms and vegetation patterns in the background.

Viewshed: The surrounding geographic area from which a project is likely to be seen, based on topography, atmospheric conditions, land use patterns, and roadway orientations. “Project viewshed” is used to describe the area surrounding a project site where a person standing on the ground or driving a vehicle can view a project site.

Visual Sensitivity: The overall measure of an existing landscape’s susceptibility to adverse visual changes. When viewing the same landscape, people may have different responses to that landscape and any proposed visual changes, based upon their values, familiarity, concern, or expectations for that landscape and its scenic quality. Because each person’s attachment to, and value for, a particular landscape is unique, visual changes to that landscape affect viewers differently. Nonetheless, generalizations can be made about viewer sensitivity to scenic quality and visual changes.

Residents and recreational users (for example, hikers, equestrians, and tourists) are expected to be highly concerned with scenery and landscape character. Local motorists who commute daily through the same landscape may have a moderate concern for scenery, while people who work within highly urbanized areas may generally have a lower concern for scenic quality or changes to existing landscape character.

Finally, the speed at which a person is traveling (for example, high speeds on a highway, low speeds on a hiking trail, or stationary) while viewing a landscape also affects the visual sensitivity of a landscape. Views from cars at high speeds would be less sensitive to changes than views at low speeds because more details can be drawn from the landscape at lower speeds.

4.1.2 Environmental Setting

Regional Character

Kern County is California's third-largest county by land area, spanning more than 8,161 square miles across diverse geographic regions. It is divided into three primary areas: the valley region, mountain region, and desert region. The Project site is located in the Valley Region of Kern County within the San Joaquin Valley, a broad, flat valley with gentle rolling hills that transition into steep alluvial fans near the western, southern, and eastern edges, where rugged mountain ranges enclose the landscape.

The San Joaquin Valley contains a variety of wetlands and rivers, with a majority of sections containing facilities for agriculture and irrigation such as pumps and aqueducts. Several stream corridors that flow into the San Joaquin Valley from the east, including the Kern River in the southern portion and the San Joaquin River in the northern portion, also contain riparian vegetation. However, most of the region consists of diverse agricultural croplands, orchards, and grazing lands, or oil and gas facilities. The region also includes a number of approved and operational photovoltaic (PV) solar facilities that are similar to the proposed Project (for example, Pioneer Green Energy Solar Project and Sandrini Solar Project). Views of agricultural lands are considered an important attribute of the county's visual character and quality.

The Project site vicinity is located in a rural area primarily consisting of orchards, agricultural infrastructure, highways, and utility infrastructure. Existing visible development in the proposed Project site vicinity includes rural access roads, rural residences, a dairy, vehicle use, active and fallow agricultural uses, limited petroleum or mineral extraction, solar energy projects, and utility transmission and distribution lines. Various solar projects have been approved and developed in the region. Vertical elements associated with orchards and utility lines are common in the region.

In the more urbanized portions of the region, which tend to be dispersed along major routes such as State Route (SR) 99 and Interstate 5 (I-5), a combination of residential, commercial, and industrial development dominate the views, with smaller amounts of recreational, open space, and other typical urban structures and physical features.

Local Character

The Project site covers approximately 11,983 acres across 128 privately owned parcels in the Valley Region of Kern County, where land is predominantly used for agricultural uses. The site consists primarily of flat terrain, with areas currently used for agricultural operations or remaining as vacant, undisturbed land designated for agricultural use. Several single-family dwellings, a dairy, and agriculture-related structures are located within and near the proposed Project boundary. Additionally, the Pacific Gas & Electric (PG&E) Midway Substation along with multiple utility transmission lines are located in the south of the Project site. The Project site is divided into seven distinct sites (Sites 1 through 6, and Site 8) that constitute the entire Project site, which are all located within unincorporated Kern County directly north of the community of Buttonwillow, approximately 2 miles west of the City of Shafter, and approximately 7 miles southwest of the City of Wasco. The site straddles I-5 and is east of Buttonwillow Raceway Park, north of SR-58, and south of SR-46. Vehicular access to the site would likely be from Wasco Way, Merced Avenue, Lerdo Highway, Rowlee Road, Wildwood Road, Riverside Street, Burbank Street, Buttonwillow Drive, 7th Standard Road, Snow Road, SR-58, and Sullivan Road. Many dirt roads crisscross the Project site.

The Project site and surrounding area consists of rural agricultural land with minimal topographic variation, ranging in elevation from approximately 250 feet above mean sea level in the northwest to 320 feet above mean sea level in the southeast. Areas not used for agriculture are characterized by relatively flat topography with saltbush and grasslands. Approximately 96% of the landscape has been modified over time, primarily due to ongoing agricultural activities, with most of the site actively irrigated today.

Water features on the Project site consist primarily of irrigation canals, ditches, and reservoirs, with no significant nonanthropogenic waterways. However, Jerry Slough crosses the northern portion of Site 8. Additionally, the National Wetlands Inventory identifies freshwater ponds and freshwater emergent wetlands within the area.

The Project site and surrounding land is zoned for agricultural use, which allows crop cultivation, livestock farming, industrial agricultural facilities, and irrigation systems. Also, some areas are used for mineral and petroleum resource extraction. Scattered throughout the Project site are single-family dwellings, often integrated with agricultural operations,. Agricultural uses dominate the landscape to the north, west, and south of the Project site. Towards the east near Bakersfield's outskirts, there is an urban transition from agriculture to industrial, suburban, and urban development.

Scenic Highways

According to the California Department of Transportation (Caltrans) California Scenic Highway Mapping System, there are no Designated State Scenic Highways within Kern County (see Section 4.1.3, *Regulatory Setting*, below for more information on the State Scenic Highway Mapping System). The closest Eligible Scenic Highway is SR-41 between SR-46 and SR-33 within

San Luis Obispo and Kings counties located approximately 41 miles (at the closest point) from the Project site.

The Kern County General Plan (KCGP) Circulation Element discusses scenic routes within the county and the process for local designation. These potential scenic routes are greater than 10 miles away from the Project site. The Buttonwillow Specific Plan proposes to make SR-11 (consisting of SR-119, Elk Hills Road, Brite Road, Dunford Road, Stockdale Highway, Dairy Road, Adohr Road, and Tupman Road) a designated scenic route.

Light and Glare

The Project site currently consists of agricultural land with single-family dwellings, a dairy and associated infrastructure, and site lighting that is typical of rural areas. Existing dwellings within the Project site and in the surrounding areas generate light largely from buildings or outdoor lighting. Accessory agricultural buildings, maintenance yards, rest areas, and gas stations located within the vicinity of the Project site also produce light that can be seen off-site. There is no local roadway lighting, such as streetlights and traffic signals.

Glare is reflective light that can be visually unpleasant or possibly unsafe due to the potential for temporary blindness. Glare is primarily a daytime occurrence, but also may occur during the nighttime from artificial sources of light, and is caused by light reflecting off light-colored or smooth, highly polished surfaces (for example, metal, glass, water, or polished stone). Glare intensity varies depending on the source and intensity of the light, time of day, time of year, angle of reflectance, weather, atmospheric conditions, the reflectivity, color, and texture of material surface finish, length of exposure, type and sensitivity of receptors, and other factors. There are developed areas surrounding the Project site that produce limited amounts of glare. As such, daytime glare conditions are minimal, being generally limited to sunlight reflecting from agricultural support structures, on- and off-road vehicles, holding ponds, and water retention basins. Given the limited amount of night lighting on and around the Project site, no significant sources of nighttime glare currently exists. As discussed further below, Chapter 19.81 of the Kern County Code of Ordinances includes a "Dark Skies Ordinance" that minimizes outdoor nighttime lighting to avoid creating excessive illumination that can produce a glow that may obscure the night sky and excessive illumination, or glare that may constitute a nuisance.

Solar Panel Glare Potential

A solar panel comprises numerous solar cells. A solar cell differs from a typical reflective surface in that its surface is microscopically irregular and designed to trap the rays of sunlight for the purposes of energy production. The intent of solar technology is to increase efficiency by absorbing as much light as possible (which further reduces reflection and glare).

A common misconception about solar PV panels is that they inherently cause or create "too much" glare, posing a nuisance to neighbors and a safety risk for pilots. In certain situations, the glass surfaces of solar PV systems can produce glint (a momentary flash of bright light) and glare (a reflection of bright light for a longer duration); however, light absorption, rather than reflection, is central to the function of a solar PV panel so that it may absorb solar radiation and convert it to

electricity. Solar PV panels are constructed of dark-colored (usually blue or black) materials and are covered with anti-reflective coatings. Modern PV panels reflect as little as 2 percent of incoming sunlight, which is similar to water and less than soil and wood shingles. Some of the concern and misconception is likely due to the confusion between solar PV systems and concentrated solar power (CSP) systems. CSP systems typically use an array of mirrors to reflect sunlight to heat water or other fluids to create steam that turns an electric generator.

Despite their low potential to create glare, PV panels can reflect sunlight skyward toward the light source, creating a potential glare impact for aircraft in the area. The effect is similar to what a motorist experiences when the sun is low in the sky and the car passes between the sun and a glass-fronted building that has been treated with an anti-reflective coating. If the motorist is heading directly toward the building, the glare would be in the motorist's eyes. Otherwise, the motorist would have to rotate the motorist's head to observe the glare off to the side. Because aircraft typically travel at a higher rate of speed than vehicles, the effect is momentary, lasting only as long as the angle between the sun, water body, and aircraft is maintained. Unless an aircraft were descending at an angle sloped directly at the solar array with the sun directly behind the aircraft, any glare that might occur from solar panels would be below the pilot's horizon.

4.1.3 Regulatory Setting

This section describes the federal, state, and local statutes, ordinances, or policies that govern the light, glare, viewshed, and scenic characteristics that the County must consider during the decision-making process for projects that have the potential to affect aesthetics.

Federal

National Trails System Act of 1968

The National Trails System Act of 1968 established national recreation, scenic, and historic trails. National scenic trails are designated as such

> *to provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass. National scenic trails may be located so as to represent desert, marsh, grassland, mountain, canyon, river, forest, and other areas, as well as landforms which exhibit significant characteristics of the physiographic regions of the nation (16 United States Code § 1242).*

The National Trails System Act of 1968 seeks to preserve scenic and natural qualities along trails. However, it recognizes the rights of private landowners and states that, in development and use of a trail, "full consideration shall be given to minimizing the adverse effects on the adjacent landowner or user and his operation" (16 United States Code Chapter 27 Section 1246(a)(2)). The National Trails System Act assigns trail management responsibility to various federal resource agencies, depending on which agency holds jurisdiction over the land where the trail is located in a given area.

There are no designated trails that afford views of the Project site.

National Scenic Byways Program

The National Scenic Byways (NSB) Program is part of the United States Department of Transportation, Federal Highway Administration (FHWA). The program was established under the Intermodal Surface Transportation Efficiency Act of 1991 and was reauthorized in 1998 under the Transportation Equity Act for the 21st Century. Under the program, the United States Secretary of Transportation recognizes certain roads as NSBs or All-American Roads based on their archaeological, cultural, historic, natural, recreational, and scenic qualities. There are no NSBs or All-American Roads that afford views of the Project site (FHWA 2019).

State

California Scenic Highway Program

Caltrans manages the California Scenic Highway Program, which was created by the State Legislature in 1963 (Caltrans 2023). The purpose of this program is to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. State laws governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq. Caltrans manages the State Scenic Highway Program, provides guidance, and assists local government agencies, community organizations, and citizens with the process to officially designate scenic highways.

A highway may be designated as scenic depending upon how much of the nonanthropogenic landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. The California Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. The status of a state scenic highway changes from eligible to officially designated when the local jurisdiction adopts a scenic corridor protection program, applies to Caltrans for scenic highway approval, and receives notification from Caltrans that the highway has been designated as a scenic highway (Caltrans 2023).

Several highways and state routes are located within the region that provide access to the Project site. As stated previously, the closest Designated State Scenic Highways (SR-33 and SR-41) are located approximately 41 miles (at the closest point) from, and do not afford views of, the Project site.

Local

Construction and operation of the proposed Project would be subject to the KCGP and the Buttonwillow Specific Plan that includes goals, policies, and implementation measures related to aesthetic resources, along with the Kern County Zoning Ordinance and the Kern County Code of Building Regulations, which include regulations pertaining to lighting and building design.

Kern County General Plan

The Project site is located within the unincorporated area of Kern County and, therefore, is subject to applicable goals, policies, and implementation measures of the KCGP. The Land Use, Conservation, and Open Space Element, Circulation Element, and Energy Element of the KCGP include goals, policies, and implementation measures related to aesthetics that apply to the proposed Project, as described below.

The Land Use, Conservation, and Open Space Element of the KCGP evaluates the visual and aesthetic setting of Kern County and assesses the potential for visual impacts. The KCGP Circulation Element provides guidelines for development near scenic routes. A scenic route is defined in the KCGP as any freeway, highway, road, or other public right-of-way which traverses an area of exceptional scenic quality. A roadway can only be designated as a scenic route by direct action of the County Board of Supervisors or the State of California. A route may not be selected as scenic until a visual assessment has been conducted to determine if the route meets the current scenic highway criteria as mentioned above, and to what extent development has encroached on the scenic views. In addition, the County must prepare and adopt a plan and program for the protection and enhancement of adjacent roadside viewshed land.

The Circulation Element of the KCGP identified several local scenic routes within Kern County (Kern County 2009). As stated above, SR-33 and SR-41 are the closest, Designated State Scenic Highways to the Project site, but are located approximately 41 miles (at the closest point) from, and do not afford views of, the Project site.

Chapter 1: Land Use, Conservation, and Open Space Element

1.10.7. Light and Glare

Policies

Policy 47. Ensure that light and glare from discretionary new development projects are minimized in rural as well as urban areas.

Policy 48. Encourage the use of low-glare lighting to minimize nighttime glare effects on neighboring properties.

Implementation Measures

Implementation Measure AA. The County shall utilize California Environmental Quality Act Guidelines and the provisions of the Zoning Ordinance to minimize the impacts of light and glare on adjacent properties and in rural undeveloped areas.

Chapter 5: Energy Element

5.4.7 Transmission Lines

Goal

Goal 1. To encourage the safe and orderly development of transmission lines to access Kern County's electrical resources along routes, which minimize potential adverse environmental effects.

Policy

Policy 5. The County should discourage the siting of above-ground transmission lines in visually sensitive areas.

Buttonwillow Community Development Specific Plan

A portion of the Project site (specifically Site 1) is located within the administrative boundaries of the Buttonwillow Community Development Plan (Buttonwillow Specific Plan). The existing map code designation for this portion is Intensive Agriculture, located on Zone Map 98. The proposed Project includes an amendment to the Circulation Element of the Specific Plan to remove future road reservations on the section and mid-section lines within the Project boundaries subject to the Specific Plan.

Kern County Zoning Ordinance

Title 19 of the Kern County Municipal Code describes permitted uses, specifies building heights, and regulates the distance between buildings within various zones of the county. The zoning ordinance consists of two primary parts: a map that delineates the boundaries of zoning districts and text that explains the purpose of the district, specifies permitted and conditional uses, and establishes development and performance standards. The following chapters of the zoning ordinance are applicable to the proposed Project:

Chapter 19.81, Outdoor Lighting "Dark Skies Ordinance"

In November 2011, Kern County approved and adopted a Dark Skies Ordinance that is incorporated into the Kern County Zoning Ordinance as Chapter 19.81. The purpose of this ordinance is to maintain the existing character of Kern County by requiring a minimalist approach to outdoor lighting design, recognizing that excessive illumination can create a glow that may obscure the night sky and excessive illumination, or glare that may constitute a nuisance. Requirements for outdoor lighting within specified unincorporated areas of Kern County are crafted in order to accomplish the following objectives:

- Encourage a safe, secure, and less light-oriented nighttime environment for residents, businesses, and visitors.
- Promote a reduction in unnecessary light intensity and glare, and to reduce light spillover onto adjacent properties.

- Protect the ability to view the night sky by restricting unnecessary upward projections of light.
- Promote energy conservation and a reduction in the generation of greenhouse gases by reducing wasted electricity that can result from excessive or unwanted outdoor lighting.

Kern County Development Standards

The Kern County Development Standards have specific regulations pertaining to lighting standards, including the requirement that lighting must be designed so that light is reflected away from surrounding land uses so as not to affect or interfere with vehicular traffic, pedestrians, or adjacent properties.

4.1.4 Impacts and Mitigation Measures

This section describes the impact analysis relating to aesthetics and visual resources for the proposed Project. It describes the methods used to determine the impacts of the proposed Project and lists the thresholds used to conclude whether an impact would be significant. Measures to mitigate (that is, avoid, minimize, rectify, reduce, eliminate, or compensate for) significant impacts accompany each impact discussion, where applicable.

Methodology

The proposed Project's potential impacts to aesthetics have been evaluated using a variety of resources. In general, the potential character, quality, light, and glare impacts associated with the proposed Project are evaluated on a qualitative basis. This visual impact assessment is being utilized to identify and assess any potential long-term adverse visual impacts to aesthetics and visual resources that might result from the implementation of the proposed Project. This assessment is based on the following approved visual assessment practices that the FHWA (FHWA 2015), Bureau of Land Management (BLM), U.S. Forest Service, and other federal regulatory agencies employ:

- Defining the proposed Project and its visual setting by assessing the Project proponent's submitted project application materials, including plans and descriptions, and reviewing Google Earth Pro™ aerial photographs and street-level photography, Kern County GIS topographic and land use data, and U.S. Geological Survey topographic data.
- Conducting a field visit of the Project site and vicinity to document the following:
    - Project site's visual characteristics.
    - Project vicinity's visual characteristics.
    - Establish a visual characteristic baseline.
- Establishing KOPs within vicinity from which to evaluate potential visual impacts resulting from implementation of the proposed Project.
    - KOPs that are the most representative and important viewpoints identified during the field survey to evaluate potential visual impacts that would result from the proposed Project.

- Preparing visual simulations of post-development views of the KOPs.
- Assessing the proposed Project's impacts to sensitive viewers by applying the visual quality rating system to each of the visual simulations.
- Proposing methods to mitigate or reduce any potentially significant visual impacts identified.

The evaluation of proposed Project impacts is based on professional judgement, analysis of the KCGP goals and policies related to visual resources, and the significance criteria established by California Environmental Quality Act (CEQA) Guidelines, Appendix G. More detailed information on the methodology behind the selection of KOPs and visual simulations is provided below.

Selection of Key Observation Points

KOPs were selected to represent views that would be experienced from sensitive viewpoints. KOPs are single viewpoints that provide a representative sample of proposed Project impacts from public viewing locations. KOPs were identified based on review of available land use data, preliminary viewshed analysis, and a review of aerial maps.

The proposed Project is located entirely within privately owned parcels with minimal public visibility due to the lack of public access to the areas, as they are predominantly used for agricultural production. There are a limited volume, frequency, and duration of views of the Project site and viewers would primarily be people driving to and from destinations within the area. Sensitivity to change in the landscape would be experienced by travelers who would generally fall into the following categories: employees, residents, or tourists. Therefore, KOPs were selected to represent views that would be experienced by these visual sensitive receptors at from public viewing locations along local roadways.

The process of identifying KOPs focused on selecting public viewpoints that could be used to accurately represent views from a broader range of viewpoints. The familiarity with the view also influences how much attention is spent on the visual environment. Regular motorists may be highly familiar with the public view and sometimes pay less attention; however, these motorists tend to be much more sensitive to changes in that view. Commuters within the Project site would have heightened sensitivity to visual changes to the landscape, specifically, those who utilize I-5, Lerdo Highway, 7th Standard Road, and other local roadways. People who are less familiar with the public view may spend more time looking at the surrounding land but would not notice changes in the view. The majority of existing motorists are likely to be employees of nearby businesses and commerce centers, or residents driving to and from home, or travelers along I-5 and other major local roadways.

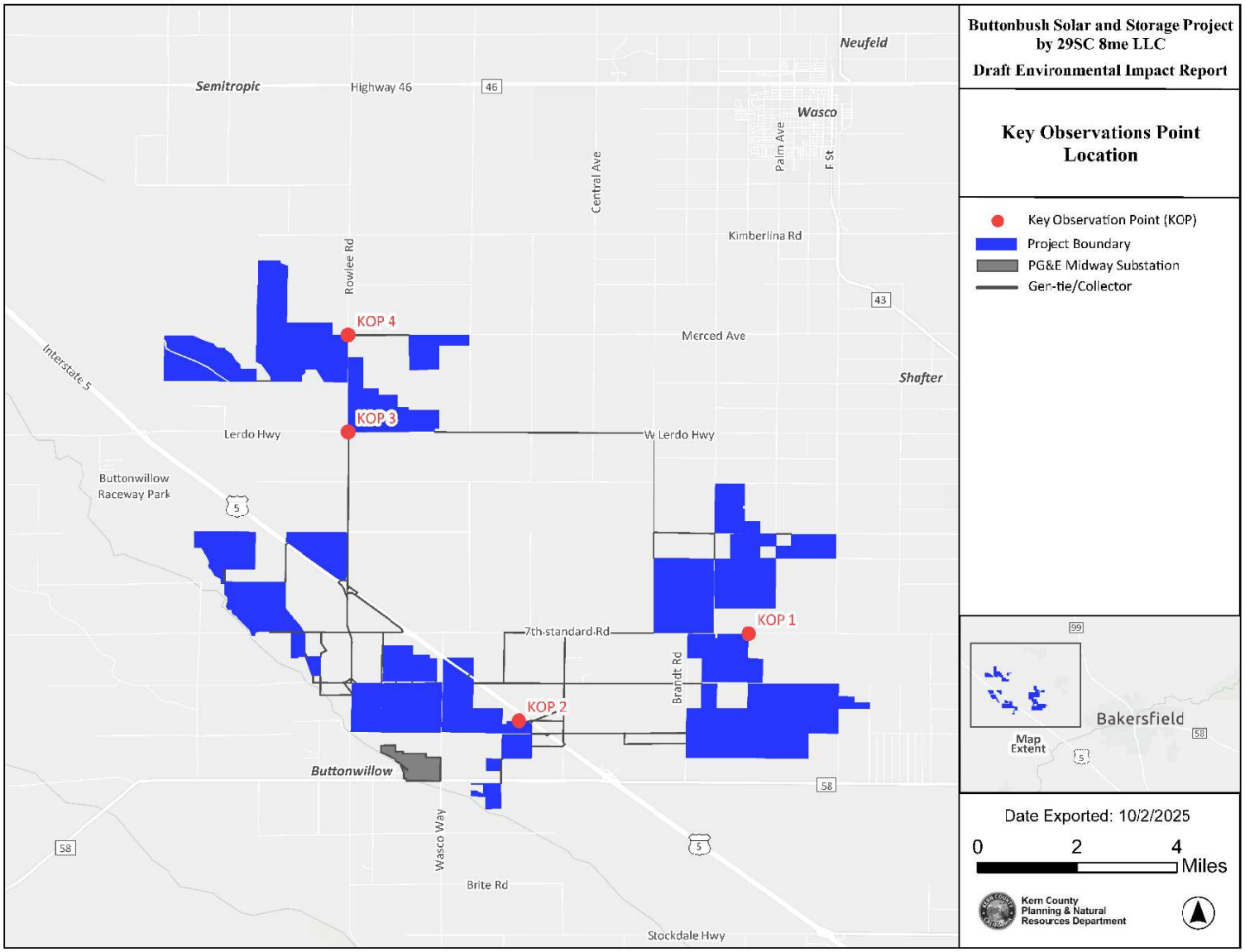
The lead agency selected four KOPs to create post-development visual simulations. The evaluated KOPs are mapped on **Figure 4.1-1:** *Key Observation Point Locations*, and described below in **Table 4.1-1:** *Key Observation Points*. The KOPs selected for simulation were chosen because they represent views that travelers would experience from the local roadways when viewing the Project site.

Table 4.1-1: Key Observation Points

KOP	Location	Representative Sensitive Viewers
KOP-1	7th Standard Road, east of Magnolia Avenue approximately 80 feet, looking southwest toward the Project site	Motorists: employees, residents, and tourists on Magnolia Avenue and/or 7th Standard Road as they pass the Project site.
KOP-2	West of I-5, just south of the Southbound Buttonwillow Rest Area looking southwest toward the Project site	Motorists: employees, residents, and tourists on I-5 as they pass the Project site. Travelers visiting the rest stop.
KOP-3	Intersection of Rowlee Road and West Lerdo Highway looking northeast toward the Project site	Motorists: employees, residents, and tourists on Rowlee Road and West Lerdo Highway as they pass the Project site.
KOP-4	Intersection of Rowlee Road and Merced Avenue looking southwest toward the Project site	Motorists: employees, residents, and tourists on Rowlee Road and Merced Avenue as they pass the Project site.

Key: I-5 = Interstate 5; KOP = key observation point

Figure 4.1-1: Key Observation Point Locations



Simulation Preparation

Visual simulations of Project development from the identified KOPs were prepared by WSP in January 2025 (**Figure 4.1-2** through **Figure 4.1-5**) to provide a representation of the pre- and post-Project visual conditions as well as context for qualitative description of the aesthetic changes that would result from implementation of the proposed Project. Dudek took photographs and WSP prepared simulations using the assumptions and methodologies listed below in **Table 4.1-2:** *Visual Simulation Methodology and Assumptions*.

Table 4.1-2: Visual Simulation Methodology and Assumptions

Photography from Key Observation Points	▪ Photos were taken on a clear day with scattered clouds in December 2024 ▪ Photos were taken on an iPhone 15 Pro Max with following camera system: ▪ 48MP Main: 24 mm, *ƒ*/1.78 aperture, second generation sensor shift optical image stabilization, 100% Focus Pixels, support for super high resolution photos (24MP and 48MP) ▪ 12MP Ultrawide: 13 mm, *ƒ*/2.2 aperture and 120° field of view, 100% Focus Pixels ▪ 12MP 2x Telephoto (enabled by quad pixel sensor): 48 mm, *ƒ*/1.78 aperture, second generation sensor shift optical image stabilization, 100% Focus Pixels ▪ 12MP 5x Telephoto: 120 mm, *ƒ*/2.8 aperture, 3D sensor shift optical image stabilization and autofocus, tetraprism design ▪ No zoom was used in the photos Source: Apple 2024
Visual Simulation Assumptions	**For all KOP views:** The Solar PV Tracker 3D models used were 9 feet tall and 7.8 feet wide, arrayed at various lengths. Arrays were placed based on Project site plans. Panels were rotated to face the sun and display the maximum number of panels in the photo simulations. The chain-link security fence 3D models were 6.5 feet tall and placed based on Project site plans. **For KOP-3:** The microwave tower 3D model was 130 feet tall. The substation site 3D model was various typical electrical substation models and buildings arranged within defined site boundary area.
Methods	Following the data gathering phase, the process begins with a determination of proposed camera locations and station points. Upon review and approval of camera locations, Dudek conducted a field visit to photograph the locations. Concurrently, WSP developed a computer model of the proposed Project to illustrate its appearance from different points of view. Natural and finished pads, including existing and surrounding contextual elements such as streets, lights, trees, terrain, and adjacent development (where applicable), were used as a reference. Upon completion of the 3D modeling phase, realistic materials, maps, and textures were then applied. The next phase was assembly, during which the modeling was inserted into photographs taken during the field study using a full-frame camera and camera match technology. 3D pads and boundary outlines were used to situate the modules to the proposed positions as shown on the CAD drawings provided. During this process, a computer model camera was aligned with the on-site photography to depict the Project setting within each view.

Key: 3D = three-dimensional; CAD = computer-aided design; KOP = key observation point; mm = millimeter; MP = megapixel; PV = photovoltaic; x = times

A comparison of existing views from the KOPs with visual simulations depicting visible Project features, aided in determining the significance of Project-related impacts. The simulations are representative of the existing landscape setting contained within the Project site, as well as an illustration of how the proposed Project may look from the identified KOPs at full buildout. The ultimate location of certain facilities within the Project site had not been determined at the time the photos were taken at observation points. Camera locations were chosen to include various portions of the Project site that would likely have the greatest number of public views, based on frequent travel. The facilities shown in KOPs at full buildout provide a generalized representation of how the full buildout landscape may appear from certain viewing locations. The solar orientation in the simulations do not match the site photos, as it was determined that showcasing the entire panel facing the sun would be a worst-case scenario for a conservative comparison. While the solar PV and battery energy storage system (BESS) facility shown in visual simulations are not identical to those that would be developed at the Project site, Project components are visually similar based on proposed elevations (Chapter 3, *Project Description)*, regardless of the manufacturer and, therefore, are similar enough to evaluate Project impacts to aesthetics. **Figure 4.1-2** through **Figure 4.1-5** show each of the four KOPs in their existing and post-construction conditions.

Rating Visual and Scenic Quality

"Visual quality" is a measure of a landscape or view's visual appeal. There are a number of standardized methods for rating visual quality. This analysis is based on BLM's "Scenic Quality Rating Criteria" that are comprehensive and enable quantification of the various landscape elements that comprise visual quality.

Scenic quality refers to the visual appeal of a landscape relative to desired scenic values and the abundance or scarcity of similar qualities in the region. Scenic quality can be measured quantitatively by evaluating the presence or absence of scenic features and the intrusion of features that detract from the scenic features.

According to this method, visual and scenic quality can be rated according to the presence and characteristics of seven key components of the landscape. As described below, and summarized in **Table 4.1-3:** *Visual Quality Rating System*, these components include landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications.

The **landform** component of the visual quality rating criteria considers the fact that topography becomes more interesting visually as it gets steeper or more massive, or more severely or universally sculptured. Outstanding landforms may be monumental, (as found in Yosemite Valley), or they may be exceedingly artistic and subtle (for example, certain badlands, pinnacles, arches, and other extraordinary formations).

The **vegetation** component of the rating criteria gives primary consideration to the variety of patterns, forms, and textures that plant life creates. Short-lived displays are given consideration when they are known to be recurring or spectacular. Consideration is also given to smaller scale vegetation features that add striking and intriguing detail elements to the landscape (for example, gnarled or wind beaten trees and Joshua trees).

The **water** component of the rating criteria recognizes that water features can contribute to the quality of a viewshed, as water features add movement or serenity to a viewshed. The degree to which water dominates a viewshed is the primary consideration in selecting the rating score for the water component.

The **color** component of the visual quality rating criteria considers the overall color(s) of the basic components of the landscape (for example, soil, rock, and vegetation). Key factors that are used when rating the color of scenery are variety, contrast, and harmony.

The **adjacent scenery** component of the rating criteria considers the degree to which scenery outside the view being rated enhances the overall impression of the scenery under evaluation. The distance of influence for adjacent scenery normally ranges from 0 to 5 miles, depending upon the characteristics of the topography, the vegetation cover, and other such factors. This factor is generally applied to views that would normally have a very low rating, but the influence of the adjacent high visual quality would enhance the visual quality and raise the score.

The **scarcity** component of the visual quality rating criteria provides an opportunity to give added importance to one or all of the scenic features that appear to be relatively unique or rare within a region. There may also be cases where a separate evaluation of each of the key factors does not give a true picture of the overall scenic quality of an area. Otherwise unspectacular elements in the proper combination can produce the most pleasing and memorable scenery – the scarcity factor can be used to recognize this type of area and give it the added emphasis it should have.

The **cultural modifications** component of the visual quality rating criteria considers any human-made modifications to the landform, water, vegetation, and/or the addition of human-made structures. Depending on their character, these cultural modifications may detract from the scenery in the form of a negative intrusion, or they may complement and improve the scenic quality of a view.

Based on the above criteria, views are rated numerically and a total score of visual quality can be tabulated. Based on the BLM's rating system, there are a total of 32 points possible. Views that score a total of 19 points or more are typically considered "very high" in visual quality. Views that score a total of 15 to 19 points are typically considered to have a "high" level of visual quality. Views that score a total of 12 to 15 points are typically considered to have an "above average" level of visual quality. Finally, views that score a total of 11 points or less are typically considered to have "average" visual quality. **Table 4.1-3:** *Visual Quality Rating System*, provides the point values associated with the various criteria.

An important premise of this evaluation method is that views with the most variety and most harmonious composition have the greatest scenic value. Another important concept is that anthropogenic features within a landscape do not necessarily detract from the scenic value. In fact, certain anthropogenic features that complement the nonanthropogenic features of the landscape may actually enhance the visual quality. Therefore, in making this determination, it is important to assess Project effects relative to the "visual character" of the Project setting. Visual character is qualitatively defined by four primary components: form, line, color, and texture. Projects that create

a high level of contrast to the existing visual character of a project setting are more likely to generate adverse visual impacts due to visual incompatibility with the existing setting. Conversely, projects that create a low level of contrast to the existing visual character are less likely to generate adverse visual impacts regarding visual compatibility. Physical modifications to the Project site that result from project implementation are quantified and evaluated for impact assessment purposes.

By comparing the difference in visual quality ratings from the baseline or pre-project visual conditions to post-project visual conditions, the severity of Project-related visual impacts can be quantified. In some cases, visual changes that a project causes may actually have a beneficial visual effect and may enhance scenic quality. The following designations are used to rank the significance of Project impacts according to the pre- and post-project differences in numerical visual quality scores:

Potentially Significant Impact: Any impact that could potentially lower the visual quality of an identified sensitive viewpoint by two points or more, and for which no feasible or effective mitigation can be identified.

Less than significant Impact with Mitigation Incorporated: Any impact that could potentially lower the visual quality of an identified sensitive viewpoint by two points or more but can be reduced to less than two points with mitigation incorporated. Therefore, specific mitigation measures are provided to reduce the impact to a less than significant level.

Less than Significant Impact: Any impact that could potentially lower the visual quality of an identified sensitive viewpoint by one point or less. In visual impact analysis, a less than significant impact usually occurs when a project's visual modifications can be seen but do not dominate, contrast with, or strongly degrade, a sensitive viewpoint.

No Impact: The project would not have an impact from an identified sensitive viewpoint. In visual impact analysis, there is no impact if the project's potential visual modifications cannot be seen from an identified sensitive viewpoint.

Table 4.1-3: Visual Quality Rating System

Key Factors	Rating Criteria and Score (Points)		
Landform	**5**—High vertical relief as expressed in prominent cliffs, spires, or massive rock outcrops, or severe surface variation or highly eroded formations including major badlands or dune systems; or detail features dominant and exceptionally striking and intriguing such as glaciers.	**3**—Steep canyons, mesas, buttes, cinder cones, and drumlins; or interesting erosional patterns or variety in size and shape of landforms; or detail features that are interesting though not dominant or exceptional.	**1**—Low rolling hills, foothills, or flat valley bottoms; or few or no interesting landscape features.
Vegetation	**5**—A variety of vegetative types as expressed in interesting forms, textures, and patterns.	**3**—Some variety of vegetation, but only one or two major types.	**1**—Little or no variety or contrast in vegetation.
Water	**5**—Clear and clean appearing, still, or cascading white water, any of which are a dominant factor in the landscape.	**3**—Flowing, or still, but not dominant in the landscape.	**0**—Absent, or present but not noticeable.
Color	**5**—Rich color combinations, variety or vivid color; or pleasing contrasts in the soil, rock, vegetation, water or snow fields.	**3**—Some intensity or variety in colors and contrast of the soil, rock, and vegetation, but not a dominant scenic element.	**1**—Subtle color variations, contrast, or interest; generally mute tones.
Influence of Adjacent Scenery	**5**—Adjacent scenery greatly enhances visual quality.	**3**—Adjacent scenery moderately enhances visual quality.	**0**—Adjacent scenery has little or no influence on overall visual quality.
Scarcity	**5**—One of a kind; or unusually memorable, or very rare within region. Consistent chance for exceptional wildlife or wildflower viewing, etc.	**3**—Distinctive, though somewhat similar to others within the region.	**1**—Interesting within its setting but fairly common within the region.
Cultural Modifications	**2**—Modifications add favorably to visual variety while promoting visual harmony.	**0**—Modifications add little or no visual variety to the area and do not introduce discordant elements.	**4**—Modifications add variety but are very discordant and promote strong disharmony.

Source: BLM 1986

Light and Glare Impacts

Light and glare impacts are determined by assessing the Project site's existing light and glare levels, evaluating affected viewers, viewer sensitivity, and viewer preferences, and determining if changes in light and glare associated with the proposed Project are negligible, positive, or negative and if any mitigation is needed to reduce impacts. Intensities may range from being less substantial when there is little change and light, and glare levels remain essentially the same, and result in a neutral viewer response. Conversely, impacts may be more substantial when changes in light and glare levels result in degraded light and glare conditions and cause a negative viewer response by either

decreasing light and glare in areas that are perceived as already having too little or adequate lighting or increasing light and glare in areas that are perceived as already having adequate or too much light or glare. Substantially increasing or decreasing light and glare levels would heighten viewer response and result in more severe impacts.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist state that a project would have a significant impact regarding aesthetics and visual resources if it would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- In rural areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings. (Public views are those that are experienced from publicly accessible vantage points.). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality; or Substantially degrade the existing visual character or quality of the site and its surroundings; and/or
- Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

As the Project site is not located in an urban area, thresholds that apply to projects located within an urban area do not apply to the proposed Project.

Project Impacts

The amount of visual change that would be introduced into the existing landscape and the degree to which viewers are likely to be impacted and react to the change are described below for each applicable threshold of significance. Impacts associated with implementation of the proposed Project include construction, operation, and decommissioning/abandonment.

Impact 4.1-1: Would the Project have a substantial adverse effect on a scenic vista?

Currently there are no federal, state, or locally designated scenic vistas within the Project site or vicinity of the Project site.

PG&E Midway (Midway) Substation Upgrades

The proposed Project includes enlarging the Midway Substation's 500-kilovolt (kV) yard within the Midway Substation property boundaries. The Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to new construction activities as part of the proposed Project. PG&E may install two four-inch fiber-optic line conduits

and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest of the Midway Substation property. Other activities include: installing up to nine, 67.5 cubic feet underground substructure vaults along the conduit trenches; removing an existing precast security wall at the northwest side of the Midway Substation and replacing it with a new 12-foot wall; grading of the connection area; installing approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker; equipment foundations and concrete trenches; equipment cabinets; bus structures; communication lines; conduits; pull boxes; and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the Point of Change of Ownership for the proposed Project. Up to four approximately 175-foot-tall lattice steel towers or tubular steel poles would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads. For a detailed description of the Midway Substation upgrades, see Section 3.0, *Project Description.*

As stated above, the Project site—including, but not limited to, the Midway Substation site—is not located within the vicinity of a federal, state, or locally designated scenic vista.

Summary

The proposed Project would not have a substantial adverse effect on a scenic vista.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Not applicable—no impacts would occur.

Impact 4.1-2: Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway?

The proposed Project would not be visible from an Officially Designated State Scenic Highway. The nearest, Officially Designated State Scenic Highways to the Project site are SR-33 and SR-41, each of which are located approximately 41 miles from the Project site and do not afford views of the Project site.

The scenic routes described in the Buttonwillow Specific Plan are approximately 1.5 miles to the east and south of the Project site. These scenic routes are not locally designated or State Scenic Highways.

Finally, the proposed Project does not involve the removal, alteration, or change in the surroundings of a scenic resource and/or historic building (within, or outside of, a viewshed from a Designated or Eligible State Scenic Highway).

Midway Substation Upgrades

As described above in Impact 4.1-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. As is the case for the other features of the proposed Project, development of the Midway Substation site would not be visible from an Officially Designated State Scenic Highway. The scenic routes described in the Buttonwillow Specific Plan are approximately 1.5 miles to the west and south of the Midway Substation site; however, these scenic routes are not locally designated or State Scenic Highways. Finally, the Midway Substation site is an existing developed site that does not include a scenic resource and/or historic building that could be removed, altered, or otherwise changed.

Summary

Therefore, there would be no impacts associated with damage to a scenic resource or historic building within a Designated or Eligible Scenic Highway viewshed.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Not applicable—no impacts would occur.

Impact 4.1-3: Would the Project, which is located in a rural area, substantially degrade the existing visual character or quality of public views (that is, views that are experienced from publicly accessible vantage points) of the site and its surroundings?

As stated in Chapter 3, *Project Description*, and in Section 4.1.2, *Environmental Setting*, the Project site is located within a rural area with existing development consisting of access roads, dwellings, a dairy, active and fallow agricultural uses, petroleum or mineral extraction facilities, solar energy facilities, and utility transmission and distribution lines. The Project site primarily consists of orchards, active agriculture and supporting infrastructure, a dairy, and rural dwellings, and, to a lesser degree, areas of native vegetation. The Project site is primarily flat terrain used for agricultural operations and/or designated for agricultural use.

Construction Impacts

Construction of the proposed Project would create changes in views of the Project site, as construction activities would introduce a considerable amount of heavy equipment, including compactors, backhoes, tractors, and trucks, that would be visible from publicly accessible vantage points. Construction associated with the proposed Project is anticipated to occur in multiple phases over five years or less and require the temporary facilities such as assembly areas, parking areas, and staging and laydown areas. During construction, construction personnel would access the site via multiple local roads. It is estimated that an average of up to 800 workers per day with up to 1,334 workers during peak construction period would be required during the proposed Project. Material deliveries are expected daily. Vehicle and equipment operations may produce visible dust during land-clearing operations and from traveling on unpaved roadways. As discussed in Section 4.3, *Air Quality*, the proposed Project would be subject to mitigation measures to control dust generation, which could attract attention from visual receptors and adversely affect short-range views. Construction traffic would generally access the Project site from Wasco Way, Merced Avenue, Lerdo Highway, Rowlee Road, Wildwood Road, Buttonwillow Drive, 7th Standard Road, Snow Road, SR-58, and Sullivan Road. Temporary road closures may be necessary for staff safety, and driveways, parking lots, staging areas, gates, and road aprons would be constructed as needed. Depending on the construction phase, the proposed Project would involve various construction equipment, including helicopters, cranes, and earthmoving machinery, to complete activities such as site preparation, grading, foundation work, panel installation, and electrical connections. This equipment would be visible in the foreground and middle ground from local roadways and may be visible from long distances silhouetted against the sky, specifically in the areas with open and visible landscapes within the Project site. The visibility of construction equipment and activities would create noticeable contrast when viewed in the context of off-site agricultural lands although some viewers may be accustomed to seeing heavy machinery associated with agriculture in the area. However, given the temporary duration of construction activities and project phasing, the changes in view would be localized (with some variation depending on construction phase), impacts associated with construction activities would be less than significant.

During construction, if not properly maintained, the Project site and surroundings can accumulate significant amounts of both recyclable and non-recyclable materials, along with waste from personnel, that can degrade views. This is a potentially significant impact that can be reduced to an insignificant level with the implementation of Mitigation Measure MM 4.1-1 that would prevent trash buildup. Therefore, impacts to existing visual character or quality of the Project site and surrounding area during construction of the proposed Project would be less than significant with mitigation.

Operation

Following completion of the proposed Project, construction equipment would be removed and the long-term visual character or quality of public views would include solar and energy storage facilities with associated infrastructure. The proposed Project would introduce solar facilities and associated infrastructure at seven sites (Sites 1 through 6, and Site 8) throughout 11,983 acres. Proposed Project components would include solar panels, solar racking, inverters, service roads, a

power collection system (230kV–34.5 kV), communication cables, microwave towers, overhead and underground transmission lines, electrical switchyards, project substations, energy storage system(s), fencing, and operation and maintenance (O&M) facilities. The proposed Project involves a 500-kV, overhead gen-tie and/or underground electrical transmission line(s) originating from one or more on-site substations and terminating at the PG&E owned Midway Substation.

The O&M facilities would include a building and paved parking lot, which would be constructed to provide a base for ongoing operations and maintenance at the Project site. The building would house electronic controls and communication systems; provide storage space for tools, maintenance supplies, and spare parts; and provide on-site facilities for the staff.

The Project site would be enclosed within a chain-link fence, measuring up to 8 feet in height and may include barbed wire. Fencing would be installed with a four inch gap from the bottom and would be knuckled back to form a smooth edge, to allow for the passage of the San Joaquin Kit Fox, as discussed in Section 4.4, *Biological Resources*. Because solar facilities and fencing would be located nearest to roadways, these features of the proposed Project would be most visible to, and alter foreground views for, travelers along the roadways. Also, due to their height, poles and towers that support gen-tie lines and other features of the proposed Project, along with the substations and O&M buildings, would be taller than typical homes and crops in the area would alter middle and background views for travelers along these roadways.

The following provides an analysis of the changes in views from the four KOPs that are described in **Table 4.1-3:** *Visual Quality Rating System*, which are representative of the changes in views from other locations that afford views of the Project site and surroundings.

KOP-1. **Figure 4.1-2:** *KOP-1 Existing and Proposed Conditions at 7th Standard Road, North of Magnolia Avenue*, presents the view from KOP-1 along 7th Standard Road, just north of Magnolia Avenue, looking southwest toward the Project site. This viewpoint reflects how travelers along 7th Standard Road would view the site while traveling on this roadway. The pre-development view from KOP-1 features a level, fallow agricultural landscape, with rolling hills and treetops faintly visible in the distance. The site is sparsely vegetated; however, seasonal crop growth introduces variation in vegetation and color. The post-development view from KOP-1 (**Figure 4.1-2)** would primarily include changes in the foreground and middle ground, with background trees and hilltops partially obscured by the development. However, due to their distance, these features are already difficult to discern so their reduced visibility would not be significantly noticeable. The PV panels would be visible from KOP-1, but their uniform shape and height align with the existing landscape and do not significantly alter its flat terrain. The proposed Project would introduce industrial structures to the site, which would alter the existing agricultural landscape. As outlined in **Table 4.1-4:** *Visual Quality Rating Analysis—KOP 1*, the pre-development score is 7, and the post-development score is 5, indicating that visual impacts from KOP-1 would be potentially significant.

KOP-2. **Figure 4.1-3:** *KOP-2 Existing and Proposed Conditions West of I-5 and Southbound Buttonwillow Rest Area*, presents the view from KOP-2, located south of the southbound Buttonwillow rest area along I-5, looking southwest toward the Project site. KOP-2 represents the perspectives of residents, employees, and tourists traveling adjacent to the Project site, and

individuals utilizing the rest area. The pre-construction view from KOP-2 features flat, fallow agricultural land with scattered trees and agricultural structures in the background, along with distant rolling hills. The scenery has little variety in color and vegetation, consisting of tilled soil in the foreground and middle ground, roadside grass in the immediate foreground, and sparse trees in the background. During the growing season, blooming crops introduce additional color and vegetation variety to the landscape. The post-development view from KOP-2 (**Figure 4.1-3**) would reflect changes primarily in the middle ground. The proposed PV panels would be visible from this location, partially obscuring views of distant trees and rolling hills, particularly at midday due to solar orientation. Additionally, the facility would replace crop fields, removing the seasonal color and vegetation variations provided by crop growth, while introducing contrasting colors supplied by the facility's metal and glass elements to the valley floor. Like the view from KOP-1, while the solar panels would be installed in rows mimicking the structured arrangement of crops, the PV facility would introduce industrial features versus agricultural features, altering the agricultural character of the scenery. As outlined in **Table 4.1-5:** *Visual Quality Rating Analysis—KOP-2*, the pre-development score is 6, and the post-development score is 5, indicating that visual impacts from KOP-2 would be potentially significant.

KOP-3. **Figure 4.1-4:** *KOP-3 Existing and Proposed Conditions at Rowlee Road and West Lerdo Highway*, presents the view from KOP-3 at the intersection of Rowlee Road and West Lerdo Highway looking northeast toward the Project site. KOP-3 represents views of the Project site that travelers along the roadways adjacent to the Project site would experience. In the pre-construction view, the landscape is predominantly flat, extending into the horizon with little variation in the landform. Vegetation is sparse, with subtle crop growth in the distant middle ground and a small cluster of trees visible to the north in the background. However, the disturbed soils indicate that the site is being prepared for agricultural use that likely would produce colors associated with crop growth. Post-development, the view from KOP-3 (**Figure 4.1-4**) would reflect changes primarily to the middle ground, including facility structures of varying shapes and heights that contrast with the existing flat terrain. While the proposed Project would introduce more defined forms to the landscape, they do not harmoniously integrate with the surrounding scenery. The presence of these facilities signals human development and production on the valley floor, with solar facilities marking the transition from agricultural use to solar energy production. The facility would not obscure any distinctive features, as the landform remains consistently flat with minimal vegetation, and the distant cluster of trees would remain visible through the security fence. As outlined in **Table 4.1-6:** *Visual Quality Rating Analysis—KOP-3*, the pre-development score is 5 and the post-development score is 3, indicating that visual impacts from KOP-3 would be potentially significant.

KOP-4. **Figure 4.1-5:** *KOP-4 Existing and Proposed Conditions and Rowlee Road and Merced Avenue*, presents the view from KOP-4 at the intersection of Rowlee Road and Merced Avenue looking southwest toward the Project site. KOP-4 represents views of the Project site that travelers along the roadways adjacent to the Project site would experience. The pre-construction views from KOP-4 depict a flat landscape with fallow land in the foreground extending into the distant middle ground, where a dense row of mature trees marks the horizon. The land is tilled for crop growth, meaning seasonal crops introduce some variation in color and vegetation. The post-development view from KOP-4 **(Figure 4.1-5**) would include changes in the foreground and middle ground of the landscape, replacing cropland with facility structures and removing the row of trees, exposing

an uninterrupted horizon. Unlike the other KOPs, no rolling hills are visible, leaving the post-construction landform noticeably flat and lacking in visual complexity. The proposed Project facilities, with their relatively uniform shape, would integrate into the flat landscape without significant disruption. As discussed in **Table 4.1-7:** *Visual Quality Rating Analysis—KOP-4*, the pre-development score is 7, and the post-development score is 5 and, therefore, visual impacts from KOP-4 would be potentially significant.

Figure 4.1-2: KOP-1 Existing and Proposed Conditions at 7th Standard Road, North of Magnolia Avenue

Existing: 7th Standard Road, North of Magnolia Avenue



Proposed: 7th Standard Road, North of Magnolia Avenue



Table 4.1-4: Visual Quality Rating Analysis—KOP-1

Sensitive Receptor: Travelers along 7th Standard Road as they pass the Project site. Pre-development and post-development conditions are depicted in Figure 4.1-2.				
Rated Feature	**Pre-Development Condition**	**Post-Development Condition**	**Difference in Scores**	**Impact Significance**
Landform	1	1	0	Less than significant
Explanation	The foreground features level, fallow agricultural land, with a cluster of mature trees, utility poles, and rolling hills dotting the horizon of the flat landscape. These features are vaguely seen in the distance.	The proposed Project facilities are relatively uniform in shape and would not alter the flat landscape. Distant mature trees, utility poles, and rolling hills on the horizon would be partially obscured, but the overall landform would not change.		
Detail	The landform from this KOP would be generally unaltered with the installation of proposed Project facilities and would maintain its flat topography. proposed Project facilities would partially obscure the distant rolling hills, utility poles and mature trees. However, these features are already difficult to discern due to their far distance, so the reduction in visibility would not be significantly noticeable, and the overall flat character of the landform would remain unchanged.			
Vegetation	2	1	-1	Less than significant
Explanation	The foreground consists of uncovered soil that appears to have been recently tilled for agricultural production. During growing season, vegetation would offer colorful shades specific to crops such as greens and earthy tones. Distant mature trees are visible but are silhouetted against the horizon and offer little vegetative detail.	While seasonal, proposed Project facilities would replace some growing vegetation. However, some vegetation would grow in-between solar panels, which would be managed for optimal solar exposure upon panels. Mature trees in the far distance would be partially obscured by the development of the facility.		
Detail	The post-development views would not contain any vegetation, a change from the seasonal colors associated with crop growth. While mature trees on the horizon would be partially obscured, this change is minimal, as their distant location prevents them from contributing distinct coloration or texture. Overall, views of vegetation from KOP-1 would remain generally unchanged, except during seasonal growing periods.			

Sensitive Receptor: Travelers along 7th Standard Road as they pass the Project site. Pre-development and post-development conditions are depicted in Figure 4.1-2.				
Rated Feature	**Pre-Development Condition**	**Post-Development Condition**	**Difference in Scores**	**Impact Significance**
Water	0	0	0	Less than significant
Explanation	No water is observed from the viewpoint.	The proposed Project would not incorporate any visible water features to the site.		
Detail	The Project site contains no significant water features, nor would the development introduce any visible water features within the surrounding area as seen from KOP-1.			
Color	1	1	1	Less than significant
Explanation	The existing landscape features shades of brown across the foreground. During growing season, crops will introduce variation in color to the landscape. In the distant middle ground and background, shades of blues and grays are associated with the line of trees and the rolling hills on the horizon.	The addition of PV panels would bring metals and glass materials to the site, introducing dark colors, while their supporting bases and the security fence surrounding the site would feature lighter shades, providing variation in colors.		
Detail	The proposed Project facility would introduce dark blue colors similar to those seen skyward, with a variation in lighter colors towards the ground. During the growing season, crop-specific hues would enhance color diversity at the site. While the removal of crops and their associated colors would be necessary to accommodate the facility, the addition of PV panels and a security fence would introduce gray and silver tones to a landscape currently dominated by shades of brown, creating a subtle blend with the colors of the horizon. Cool blues in the background would be complemented with dark blues and silvers from panels, with transitionary lighter colors from steel support components that provide a visual cue that signals a change of the landscape at the horizon to less prominent features at the ground level.			
Adjacent Scenery	1	1	0	Less than significant
Explanation	Adjacent scenery consists mainly of agricultural land.	Adjacent scenery would remain unchanged as the KOPs would change to include solar facilities. These facilities are similar to agricultural facilities in the sense that they are incorporated by rows for solar orientation, similar to crops. The general scenery is agricultural and solar production.		

Sensitive Receptor: Travelers along 7th Standard Road as they pass the Project site. Pre-development and post-development conditions are depicted in Figure 4.1-2.				
Rated Feature	**Pre-Development Condition**	**Post-Development Condition**	**Difference in Scores**	**Impact Significance**
Detail	Solar facilities would be introduced into a predominantly agricultural production area. Like crop rows, the PV panels would be oriented for optimal sunlight exposure and installed in fixed rows for energy generation. As a result, the visual character of agricultural and solar production would remain largely consistent.			
Scarcity	1	1	0	Less than significant
Explanation	The available views are broad and there are no unique aspects from KOP-1. Similar views exist throughout the region.	Views would be slightly modified by the proposed Project's development, however would not change anything of scarcity.		
Detail	Existing views offered from KOP-1 are typical of the area and are not particularly unusual or unique. Alteration of the landscape to accommodate the proposed Project would not result in visually significant impacts to features that are scarce throughout the region.			
Cultural Modifications	1	0	0	Less than significant
Explanation	Views of cultural modifications include agricultural facilities and tilled rows in the soil for crop production.	Post-construction cultural modifications include a PV facility which is a departure from agricultural human-made influences on the valley floor.		
Detail	Cultural modifications to the site currently include agricultural production. The implementation of the proposed Project would introduce other human-made facilities, suggesting human development and production on the valley floor. However, solar facilities would not deviate or intensify the modifications.			
Totals	7	5	-2	**Potentially significant**

Key: KOP = observation point; PV = photovoltaic

Figure 4.1-3: KOP-2 Existing and Proposed Conditions West of I-5 and Southbound Buttonwillow Rest Area

Existing: West of I-5 and Southbound Buttonwillow Rest Area



Proposed: West of I-5 and Southbound Buttonwillow Rest Area



Table 4.1-5: Visual Quality Rating Analysis—KOP-2

Sensitive Receptor: Travelers along I-5 as they pass the Project site. Travelers visiting the rest stop. Pre-development and post-development conditions are depicted in Figure 4.1-3.				
Rated Feature	**Pre-Development Condition**	**Post-Development Condition**	**Difference in Scores**	**Impact Significance**
Landform	1	1	0	Less than significant
Explanation	The foreground features flat fallow agricultural land with roadside vegetation, with some treetops and rolling hills on the horizon of the flat landform. These features are vaguely seen in the distance.	The proposed facility would not significantly alter the flat terrain. From KOP-2, the distant trees and landforms of rolling hills would be partially obscured at the height of the day due to solar orientation.		
Detail	The landform as viewed from KOP-2 would remain generally unchanged as it would maintain its flat topography. The solar panels, being uniform in shape and height, blend into the horizon but would partially obscure distant rolling hills at the height of the day due to solar orientation.			
Vegetation	2	1	-1	Less than significant
Explanation	Patches of vegetation covers the immediate roadside foreground, while uncovered soil that appears to have been recently tilled for agricultural production extends into the middle ground. Distant mature trees are visible but are silhouetted against the horizon and offer little vegetative detail.	While seasonal, proposed Project facilities would replace some growing vegetation. However, some vegetation would grow in-between solar panels, which would be managed for optimal solar exposure upon panels. Mature trees and rolling hills in the far distance would be partially obscured by the development of the facility. Existing roadside vegetation would remain, as it is located beyond the site boundary.		
Detail	During crop growing season, blooming vegetation would offer colorful shades specific to crops, such as greens and earthy tones. The post- development views of vegetation from KOP-2 would be slightly reduced by the removal of vegetation, and the view of distant treetops obscured.			
Water	0	0	0	Less than significant
Explanation	No water is observed from the viewpoint.	The proposed Project would not incorporate any visible water features to the site.		

Sensitive Receptor: Travelers along I-5 as they pass the Project site. Travelers visiting the rest stop. Pre-development and post-development conditions are depicted in Figure 4.1-3.				
Rated Feature	**Pre-Development Condition**	**Post-Development Condition**	**Difference in Scores**	**Impact Significance**
Detail	The Project site contains no significant water features, nor would the development introduce any visible water features within the surrounding area as seen from KOP-2.			
Color	**1**	**1**	**0**	Less than significant
Explanation	The existing landscape features seasonal subdued shades of green and brown in the foreground, gradually fading into the softer browns of uncovered soil in the middle ground. In the background, trees and rolling hills appear in muted blues, grays, and dark greens. Sunlight casts faint yellow tones across the distant hills.	The addition of PV panels would add metal and glass elements to the site, introducing darker tones, while the supporting bases and surrounding security fence would be lighter in color, creating contrast. Post-construction facilities would partially obstruct the light-covered hills in the distance.		
Detail	The pre-construction colors include seasonal green and muted shades of brown in the foreground, with cool blues, dark greens, and grays in the background. During the growing season, crop-specific hues introduce variation of color to the landscape. Development of the proposed Project would remove these colors and would be replaced by the gray and silver tones of the PV panels. Background colors of cool blues would not be substantially altered but would be less visible than pre-construction views due to partial obstruction from the proposed Project facility.			
Adjacent Scenery	1	1	0	Less than significant
Explanation	Adjacent scenery consists mainly of agricultural land.	Adjacent scenery would remain unchanged as the KOPs would change to include solar facilities. These facilities are similar to agricultural facilities in the sense that they are incorporated by rows for solar orientation, similar to crops. The general scenery is agricultural and solar production.		
Detail	Solar facilities would be introduced into a predominantly agricultural production area. Like row crops, the PV panels would be oriented for optimal sunlight exposure and installed in fixed rows for energy generation. As a result, the visual character of agricultural and solar production would remain relatively consistent.			

Sensitive Receptor: Travelers along I-5 as they pass the Project site. Travelers visiting the rest stop. Pre-development and post-development conditions are depicted in Figure 4.1-3.				
Rated Feature	**Pre-Development Condition**	**Post-Development Condition**	**Difference in Scores**	**Impact Significance**
Scarcity	1	1	0	Less than significant
Explanation	The available views are broad and there are no unique aspects from KOP-2. Similar views exist throughout the region.	Views would be slightly modified by proposed Project -related development, however would not change anything of scarcity.		
Detail	Existing views offered from KOP-2 are typical of the area and are not particularly unusual or unique. Alteration of the landscape to accommodate the proposed Project would not result in visually significant impacts to features that are scarce throughout the region.			
Cultural Modifications	1	0	-1	Less than significant
Explanation	Views of cultural modifications include an agricultural structure and tilled land for crop production behind a rustic wooden fence.	Post-construction cultural modifications include PV panels and a security fence which are visually similar in the sense of having human-made influence on the valley floor.		
Detail	Cultural modifications to the site currently include agricultural production. The implementation of the proposed Project would introduce other human-made facilities, suggesting human development and production on the valley floor. Solar facilities would intensify human technological advancement from agricultural to solar ray energy production.			
Totals	**7**	**5**	**-2**	**Potentially significant**

Key: I-5 = Interstate 5; KOP = observation point; PV = photovoltaic

Figure 4.1-4: KOP-3 Existing and Proposed Conditions at Rowlee Road and West Lerdo Highway

Existing: Rowlee Road and West Lerdo Highway



Proposed: Rowlee Road and West Lerdo Highway



Table 4.1-6: Visual Quality Rating Analysis—KOP-3

Sensitive Receptor: Travelers on Rowlee Road and West Lerdo Highway as they pass the Project site. Pre-development and post-development conditions are depicted in Figure 4.1-4.				
Rated Feature	**Pre-Development Condition**	**Post-Development Condition**	**Difference in Scores**	**Impact Significance**
Landform	1	0	-1	Less than significant
Explanation	The terrain is predominantly flat extending into the horizon, with no visible variation in landform other than a cluster of mature trees to the north.	The proposed facility would obscure the open valley landscape.		
Detail	Although the proposed Project would alter the open valley landform at this KOP, the post-development facility structures would introduce variations in height, creating a distinct contrast between the solar facility and the surrounding agricultural landscape. While the structures add depth to the flat landform, they do not enhance the landform or complement the surrounding scenery in a meaningful way.			
Vegetation	1	1	0	Less than significant
Explanation	The foreground is sparsely vegetated, with mostly exposed, disturbed soil and sporadic patches of grass. In the distance is a small cluster of tree stands, although too far away to contribute notable visual variety or texture. Seasonal crop growth in distant middle ground adds vegetation variety to the landscape.	Some of the existing vegetation would be removed from the Project site, while some vegetation would grow in-between solar panels and would be managed for optimal solar exposure upon panels. Distant trees would be slightly obscured by the security fence surrounding the facility.		
Detail	The post-development views from KOP-3 would not contain any vegetation, a change from the seasonal crop growth in the distant middle ground. The cluster of trees in the distance would be partially obscured by the fence, though this change would be minimal, as the trees are too far away to contribute distinct coloration or texture to the scenery. Given the limited and somewhat uniform vegetation in the pre-development setting, the overall visual impact would not be significantly altered.			
Water	0	0	0	Less than significant
Explanation	No water is observed from the viewpoint.	The proposed Project would not incorporate any visible water features to the site.		
Detail	The Project site contains no significant natural water features, nor would the development introduce any visible water features within the surrounding area as seen from KOP-3.			

Sensitive Receptor: Travelers on Rowlee Road and West Lerdo Highway as they pass the Project site. Pre-development and post-development conditions are depicted in Figure 4.1-4.				
Rated Feature	**Pre-Development Condition**	**Post-Development Condition**	**Difference in Scores**	**Impact Significance**
Color	1	0	-1	Less than significant
Explanation	The foreground features light brown hues from uncovered disturbed and graded soil. This indicates that crops would be planted in the future, providing a variety of green colors in the foreground. Swaths of green from vegetation in the distant middle ground provide contrast to the horizon, while a small cluster of mature trees in the distance adds a deeper shade of green to the view.	The facility and security fence would introduce silver and gray tones from the metal and concrete, replacing the green and any other seasonal colors provided by existing vegetation in the construction area. However, the distant patch of trees would remain visible through the chain-link fence.		
Detail	The pre-construction landscape features uncovered soil that appears disturbed and graded for agricultural production, indicating the future availability of green colors in the foreground Additionally, distant seasonal crop growth will introduce subtle variations to the predominantly muted browns. The proposed facility would be built over and/or obscure the existing grass and crops, replacing some of the natural green and brown hues with the grays and silvers of metal and concrete from the facility structure and surrounding fence. The proposed facility would replace green colors that are cohesive with the current landscape with colors associated with PV facility.			
Adjacent Scenery	1	0	-1	Less than significant
Explanation	Adjacent scenery consists mainly of agricultural land with local roadways being utilized by heavy-duty trucks.	The adjacent scenery is primarily agricultural, which would not enhance the facilities, but rather call attention to the industrial features.		
Detail	Solar facilities would be introduced into a predominantly agricultural production area. The facility and associated structures at this site have a more intensified industrial appearance, in which the adjacent scenery of agriculture would impact the facility to a greater degree due to the variation of agriculture and industrial aesthetics of the PV facilities. The intensification of industrial features in a predominantly agricultural area would change the visual character of the landscape.			

Sensitive Receptor: Travelers on Rowlee Road and West Lerdo Highway as they pass the Project site. Pre-development and post-development conditions are depicted in Figure 4.1-4.				
Rated Feature	**Pre-Development Condition**	**Post-Development Condition**	**Difference in Scores**	**Impact Significance**
Scarcity	1	1	0	Less than significant
Explanation	The available views are broad and there are no unique aspects from KOP-8. Similar views exist throughout the region.	Views would be slightly modified by the proposed Project's industrial development, however, would not change anything of scarcity.		
Detail	Existing views offered from KOP-3 are typical of the area and are not particularly unusual or unique. Alteration of the landscape to accommodate the proposed Project would not result in visually significant impacts to view scarcity.			
Cultural Modifications	0	0	0	Less than significant
Explanation	Views of cultural modifications include agricultural facilities and utility poles lining the roadway.	Post-construction modifications introduce a PV facility and small building, an industrial structure that stands out against an agricultural landscape.		
Detail	Cultural modifications to the site currently include agricultural production. The implementation of the proposed Project would introduce other human-made facilities which would intensify industrial uses from a predominantly agricultural area.			
Totals	**5**	**2**	**-3**	**Potentially significant**

Key: KOP = observation point; PV = photovoltaic

Figure 4.1-5: KOP-4 Existing and Proposed Conditions at Rowlee Road and Merced Avenue

Existing: Rowlee Road and Merced Avenue



Proposed: Rowlee Road and Merced Avenue



Table 4.1-7: Visual Quality Rating Analysis—KOP-4

Sensitive Receptor: Travelers on Rowlee Road and Merced Avenue as they pass the Project site. Pre-development and post-development conditions are depicted in Figure 4.1-5.				
Rated Feature	**Pre-Development Condition**	**Post-Development Condition**	**Difference in Scores**	**Impact Significance**
Landform	1	1	0	Less than significant
Explanation	The terrain consists primarily of flat, fallow agricultural land, with utility poles alongside the road and a row of mature trees stretching across the middle ground.	The PV panels, with their relatively uniform shape, would integrate into the flat landscape without significant disruption. However, the removal of trees to accommodate the proposed Project would further diminish visual depth, making the landscape lacking in landform compared to before construction.		
Detail	The pre- and post-development views are defined by flat terrain in both the foreground and middle ground. In the pre-construction landscape, mature trees in the middle ground provide structure and visual interest, but their removal for the proposed Project eliminates this defining element.			
Vegetation	2	0	-2	Less than significant
Explanation	The foreground features uncovered soil, recently tilled for agricultural production. During the growing season, vegetation would introduce vibrant hues characteristic of various crops. A row of mature trees marks the transition beyond the foreground.	Existing trees would be removed from the Project site. There is no other vegetation visible from this viewpoint.		
Detail	The post-development views from KOP-4 would remove all vegetation on the horizon at the Project site, reducing the visual quality due to the absence of plant life and reduced variety in the landscape.			

Sensitive Receptor: Travelers on Rowlee Road and Merced Avenue as they pass the Project site. Pre-development and post-development conditions are depicted in Figure 4.1-5.				
Rated Feature	**Pre-Development Condition**	**Post-Development Condition**	**Difference in Scores**	**Impact Significance**
Water	0	0	0	Less than significant
Explanation	No water is observed from the viewpoint.	The proposed Project would not incorporate any visible water features to the site.		
Detail	The Project site contains no significant water features, nor would the development introduce any visible water features within the surrounding area as seen from KOP-4. The proposed Project development would not add any water features to the site.			
Color	2	1	-1	Less than significant
Explanation	The existing landscape is characterized by earthy browns from the exposed soil in the foreground and deep greens from the trees extending across the middle ground. Seasonal crop growth will provide vibrant colors specific to blooming vegetation.	The addition of PV panels would introduce metal and glass materials to the site, providing hues that blend in with the landscape around them. The deep green would be eliminated with the removal of the trees, as would any colors associated with seasonal crop growth.		
Detail	The post-construction facilities share similar tones with the surrounding fallow land, offering little variation in color. The solar panels would introduce darker tones, which blend with the newly exposed horizon and complement the blue hues of the sky. The removal of trees and cropland would further reduce the diversity of color, resulting in a predominantly brown and beige landscape with a more monotonous appearance.			
Adjacent Scenery	1	1	0	Less than significant
Explanation	Adjacent scenery consists mainly of agricultural land with mature trees hedging the foreground.	The adjacent scenery would reinforce the change from agricultural to industrial materials in the landscape.		

Sensitive Receptor: Travelers on Rowlee Road and Merced Avenue as they pass the Project site. Pre-development and post-development conditions are depicted in Figure 4.1-5.				
Rated Feature	**Pre-Development Condition**	**Post-Development Condition**	**Difference in Scores**	**Impact Significance**
Detail	Solar facilities would be integrated into a predominantly agricultural production area. The variation of views of agriculture to industrial features would further reinforce the change and introduction of the vegetation and colors associated with the PV facility.			
Scarcity	1	1	0	Less than significant
Explanation	Unlike the other KOPs, the view from KOP-4 features a dense row of mature trees, adding depth and visual interest to an otherwise flat, agricultural landscape characteristic of the region.	The adjacent scenery would lose some visual variety provided by the trees, which would be removed to accommodate the solar facility. Their absence would make the view from this KOP slightly less distinctive.		
Detail	Existing views from KOP-4 reflect the typical characteristics of the area, with the presence of trees distinguishing this scene from other KOPs. While the trees contribute some visual interest, the overall landscape remains consistent with the region, and their removal would not result in a significant change to anything that is scarce in this particular area of the county.			
Cultural Modifications	0	0	0	Less than significant
Explanation	Views of cultural modifications include utility poles adjacent to the roadway and land tilled with rows for crop production.	Proposed development includes construction of PV panels, an adjacent paved surface, and a metal security fence around the site.		
Detail	Existing cultural modifications are subtle where tilled land blends easily into the agricultural landscape. The proposed Project introduces more prominent human-made elements through the addition of PV panels. However, the removal of mature trees reduces human-made additions to the landscape, as these trees are non-native and introduced by people to the area			
Totals	7	4	-3	**Potentially Significant**

Key: KOP = observation point; PV = photovoltaic

Factors Reducing Visual Impacts

The following attributes of the proposed Project and elements of the existing conditions would reduce visual impacts of the proposed Project :

- The Project site is generally flat and would reduce the need for grading and visible alteration of landforms.
- The lack of scenic designation of local roads in the immediate Project site reduces viewer sensitivity and expectations for scenic landscapes.
- Solar panels, the primary feature of the proposed Project, would cover most of the land on the site and would generally be low profile (that is, 12 feet in height or less). As such, solar panels would not block long-distance views.
- Solar panels do not create significant levels of glare as explained in Impact 4.1-4, below.
- Minimal on-site lighting would be required during operations, as explained for Impact 4.1-4. O&M facilities would not operate at night, and no regular nighttime staffing would be required.

The proposed Project's visual modifications would alter existing views, introducing contrast in the landscape. The visual conditions during construction and post development are rated to be potentially significant, and appropriate mitigation measures would be required to reduce impacts. While the proposed Project would not dominate current views, the implementation of Mitigation Measures MM 4.1-1 through MM 4.1-4 would further reduce anticipated visual quality impacts by minimizing the visibility of trash accumulation during construction, ensure that all proposed facilities and buildings are visually compatible with the landscape through appropriate color selection, and incorporate native vegetation screening as part of an approved landscape planting plan. However, Mitigation Measure MM 4.1-4 only requires revegetation with native vegetation where possible, and at a project size of 11,983 acres, the change in vegetation to solar facilities would alter the visual character of the area and views experienced by travelers from public views.

Mitigation Measures MM 4.1-1 through MM 4.1-4 would be implemented to reduce anticipated visual quality impacts. As detailed below, the measures would limit vegetation removal, provide screening fencing that would reduce the visibility of perimeter project features, provide for color treatment of structures to better blend into the landscape, and ensure that the site is kept free of debris and trash. However, there are no feasible mitigation measures that can be implemented to maintain the existing rural, agricultural landscape character of the Project site and surrounding area to further minimize view effects.

Midway Substation Upgrades

As described above in Impact 4.1-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. Portions of the Midway Substation upgrades (for example, new overhead transmission lines) would be visible from SR-58 and public viewing locations

located to the west of the Midway Substation. However, much of the development would be located behind a perimeter wall that would block views of the development. Further, the Midway Substation site is currently developed with facilities that are similar to, or the same as, the proposed development in terms of their height, colors, surface materials, and design. The electrical improvements such as the circuit breaker, transmission lines, and communications fibers would be similar in scale and color to the existing infrastructure within and surrounding the substation. The replacement security wall would modify views from nearby public locations; however, the proposed security wall would be similar to the existing security wall. Therefore, the Midway Substation upgrades would not substantially degrade the existing visual character or quality of public views of the site and surroundings.

Summary

As shown in **Table 4.1-4:** *Visual Quality Rating Analysis—KOP-1*, through **Table 4.1-7:** *Visual Quality Rating Analysis—KOP-4*, above, implementation of the proposed Project would result in potentially significant visual impacts to the existing quality and character of the site and surrounding area. The introduction of solar facilities and associated infrastructure would be noticeable from local roads and I-5, as experienced by travelers along these roadways. A significant portion of the site's existing vegetation would be removed during project construction, diminishing the visibility of vegetation and the seasonal colors of crops. The visual contrast created by dark features, such as solar arrays and gen-tie line infrastructure would be noticeable to local viewers, and in some cases would obscure the open valley landscape. Even from a distance, solar arrays would appear as a low, horizontal band of dark color, contrasting with the lighter agricultural land that is common of the area and region. In addition to the installation of solar panels and other facilities across 11,983 acres, the presence of on-site substations, O&M buildings, microwave towers, BESS, and gen-tie line infrastructure would introduce new elements in a landscape where they do not currently dominate, resulting in significant aesthetic impacts.

Mitigation Measures

MM 4.1-1: Prior to issuance of a grading or building permit, a Maintenance, Trash Abatement, and Pest Management Program shall be submitted for review and approval to the Kern County Planning and Natural Resources Department. The program shall include, but not be limited to the following:

a. The project proponent/operator shall clear debris from the Project site at least four times per year; this can be done in conjunction with regular panel washing and site maintenance activities.

b. The project proponent/operator shall erect signs with contact information for the project proponent's/operator's maintenance staff at regular intervals along the site boundary, as required by the Kern County Planning and Natural Resources Department. Maintenance staff shall respond within two weeks to resident requests for additional cleanup of debris. Correspondence with such requests and responses shall be submitted to the Kern County Planning and Natural Resources Department.

c. The project proponent/operator shall implement a regular trash removal and recycling program on an ongoing basis during construction and operation of the project. Barriers to prevent pest/rodent access to food waste receptacles shall be implemented. Locations of all trash receptacles during operation of the project shall be shown on final plans.

d. Trash and food items shall be contained in closed secured containers at the end of the day and removed at least once per week to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.

MM 4.1-2: The project proponent and/or operator shall install metal fence slats or similar view-screening materials, as approved by the Kern County Planning and Natural Resources Department, in all on-site perimeter fencing for any portion of the solar site that is adjacent to a residence or parcels zoned for residential use, including E (Estate Residential), R-1 (Low-Density Residential), R-2 (Medium-Density Residential), R-3 (High-Density Residential), and PL (Platted Lands) zoning, unless the adjacent property is owned by the project proponent (to be verified by the Kern County Planning and Natural Resources Department) or a public or private agency that has submitted correspondence to the Kern County Planning and Natural Resources Department requesting this requirement to be waived. Should the project proponent/operator sell the adjacent property, slat fencing or similar view-screening materials shall be installed prior to the sale.

MM 4.1-3: Prior to the issuance of the building permit for the solar facility, the project proponent/operator shall submit a proposed color scheme and treatment plan, for review and approval by the Kern County Panning and Natural Resources Department, that would ensure all project facilities including operations and maintenance buildings and associated array facilities, etc. blend in with the colors found in the natural landscape to the greatest extent possible. All color treatments shall result in matte or nonglossy finishes.

MM 4.1-4: Wherever possible, within the proposed project boundary native vegetation shall remain undisturbed unless mowing is necessary for placement of the project components. All native vegetation adjacent to the proposed project boundary shall remain in place. Prior to the commencement of project operations and decommissioning, the project proponent/operator shall submit a Landscape Revegetation and Restoration Plan for the project site to the Kern County Planning and Natural Resources Department for review and approval. The plan shall include the measures detailed below.

a. In areas temporarily disturbed during construction and decommissioning (including grading or removal of root balls resulting in loose soil), the ground surface shall be revegetated with a native seed mix or native plants and/or allowed to re-vegetate with the existing native seed bank in the topsoil where possible to establish revegetation Areas that contain permanent features such

as perimeter roads, maintenance roads, BESS yards and substation/ switchyard areas, O&M facilities and/or under arrays do not require revegetation.

b. The plan must include but is not limited to: (1) the approved California native seed mix that will be used on-site, (2) a timeline for seeding the site, (3) the details of which areas are to be revegetated, and (4) a clear prohibition of the use of toxic rodenticides.

c. Ground cover shall include native seed mix and shall be spread where earthmoving activities have taken place, as needed to establish revegetation. The seed mix or native plants shall be determined through consultation with professionals such as landscape architect(s), horticulturist(s), botanist(s), etc. with local knowledge as shown on submitted resume and shall be approved by the Kern County Planning and Natural Resources Department prior to planting. Phased seeding may be used if a phased construction approach is used (i.e., the entire site need not be seeded all at the same time).

d. Vegetation/ground cover shall be continuously maintained on the site by the project operator.

e. The revegetation and restoration of the site shall be monitored annually for a three-year period following restoration activities that occur post-construction and post-decommissioning. Based on annual monitoring visits during the three-year period, an annual evaluation report shall be submitted to the Kern County Planning and Natural Resources Department for each of the three years. Should a 75% coverage rate not be feasible through consultation with a qualified botanist, evidence of such shall be submitted to Kern County Planning and Natural Resources Department and an appropriate coverage rate shall be established. The three-year monitoring program is intended to ensure the site achieves native plant diversity, establishes perennials, and is consistent with conditions prior to implementation of the proposed project, where feasible.

Level of Significance after Mitigation

Impacts would be significant and unavoidable.

Impact 4.1-4: Would the Project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

The proposed facilities would operate seven days a week, with daily monitoring and maintenance activities, taking place typically during daytime hours. Personnel would largely work in the O&M building monitoring the system's performance and performing system production forecasting. Personnel would access equipment within the Project site for operational adjustments or minor repairs.

Planned maintenance activities would include routine inspection, repair, restoration, replacement or repair, washing solar panels, security surveys and actions, and modification work on proposed

project equipment and facilities. Unplanned maintenance activities, which could occur during the nighttime hours, may be required due to unexpected damage to, or failure of, equipment or facilities. Nighttime lighting would provide O&M personnel with illumination for both normal (winter season) and emergency operating conditions.

Construction Impacts

Lighting

Most construction activities would take place during daytime hours, Monday through Friday, from 7:00 a.m. to 5:00 p.m., with occasional overnight work from 10:00 p.m. to 7:00 a.m. Weekend construction may be required, typically between 8:00 a.m. and 9:00 p.m. If nighttime construction occurs due to schedule delays or critical tasks, artificial lighting may cause unwanted light trespass onto adjacent properties or brighten the night sky. The primary purposes of nighttime lighting would be to protect the safety of the construction workers and the security of equipment, materials, and vehicles. Nighttime activities requiring illumination may include refueling equipment, material staging, gen-tie crossing, quality assurance/control, and commissioning. The implementation of Mitigation Measure MM 4.1-5 would ensure lighting is kept to the minimum necessary for safety, with all lights shielded and directed downward to prevent excessive illumination. As a result, with the implementation of Mitigation Measure MM 4.1-5, construction lighting impacts would be less than significant.

Glare

During the construction period, the presence of over 800 and up to 1,334 active construction workers would result in a substantial increase in construction vehicle traffic. This influx could temporarily increase the potential for glare in the proposed Project site due to the presence of reflective vehicles and materials. However, any glare would likely be intermittent, as the sources would shift locations throughout the site as construction progresses. As a result, the impact from construction vehicles would be less than significant.

Operation

Lighting

As described in Chapter 3, *Project Description*, night lighting will be installed for security and maintenance. Nighttime lighting on-site would be installed at the access gates, substation(s), O&M building(s), and inverters to allow for access and emergency maintenance. The solar field would not require permanent lighting features. In the event of an emergency, directional lighting would be utilized for the work areas. Nighttime lighting would provide O&M personnel with illumination for both normal and emergency operating conditions. Temporary nighttime lighting may be required for access and emergency maintenance of the collector substations, O&M buildings, and inverter stations.

Operational and emergency lighting has the potential to affect nighttime views in the area. However, the implementation of Mitigation Measure MM 4.1-5 would minimize light trespass and significant illumination of the night sky by ensuring project lighting aligns with the County of

Kern's Dark Skies Ordinance. This mitigation measure mandates the use of only the necessary illumination for safety and security, with all lighting shielded and directed downward. Implementation of Mitigation Measure MM 4.1-5 and compliance with applicable local development standards and regulations pertinent to nighttime lighting would minimize the potential for light trespass onto adjacent properties and roads, and impacts would be less than significant.

Glare

The potential for daytime glare due to solar reflection of the proposed Project's PV solar system would be low because of the materials used in construction. By design, PV cells capture and absorb much of the sunlight. Although solar panels direct most of the residual reflection skyward, residual reflection can still occur in a manner that results in fugitive glare that would result in some impacts during project operations. Inbound sunlight could potentially reflect off the panel surface and be received by receptors/viewers in the surrounding area. Panel reflectivity is reduced by efficiencies in the glass panel manufacturing process, and panels are designed to absorb as much sunlight as possible. Due to their low reflectivity, the panels would not be expected to cause visual impairment for motorists on area roadways. This is because local motorists would pass well under the angle of refraction (that is, less than 30 degrees). Further, the tracker technology of panels allows them to follow the sun and be angled and tilted such that any fugitive reflected light from inbound sun rays would be projected at a similar angle and would generally be "above" the typical height of cars and trucks (and their drivers and passengers) on surrounding roads. In the morning, as solar panels track the rising sun from the eastern horizon, glare potential would be highest for westbound motorists, with panels positioned within their peripheral and direct line of sight. Similarly, in the late afternoon leading up to sunset, eastbound motorists would face the greatest glare exposure, mirroring the conditions experienced by westbound drivers in the morning.

Beyond the solar panels, project lighting and building materials may produce glare both during the day and at night, affecting off-site viewers around the Project site. For instance, if not properly shielded and directed downward, lighting at entrances, fencing, and other locations could contribute to glare if reflective materials catch the lighting. Additionally, reflective building materials, such as metallic components, may generate glare during daylight hours.

Midway Substation Upgrades

As described above in Impact 4.1-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. The Midway Substation has existing structures and lighting that produce light and glare. During construction of the proposed upgrades to the Midway Substation, temporary lighting may be needed for safety purposes if construction activities are necessary during non-daylight hours, at construction staging areas, parking areas, construction office trailer entries, and site access points. All project lighting would be directed downward and shielded to focus illumination on the desired work areas only, and to prevent light spillage onto adjacent properties. Operational lighting would be similar to existing lighting for the Midway Substation (for example, for site security) and would adhere to PG&E standards. Further, facilities

to be installed at the Midway Substation would be of similar metal material as the existing components, utilizing a matte finish when allowable, and would not generate new sources of glare which could alter public views from SR-58 and other public viewing locations that afford views of the Midway Substation.

Summary

The proposed Project would have potentially significant impacts regarding lighting and glare from solar panels and associated structures. With implementation of Mitigation Measure MM 4.1-5 lighting would be required to be directed downward and shielded, reducing lighting impacts in the Project site. Mitigation Measures MM 4.1-6 and MM 4.1-7 would require the Project proponent to design the proposed Project with emerging technologies that reduce the refractive index to reduce glare and submit project plans that include these glare-reducing technologies and non-reflective materials to the Kern County Planning and Natural Resources Department for review, prior to the issuance of building permits. These measures would reduce impacts related to lighting and glare, as seen from public viewing locations that afford views of the Project site. Therefore, with the implementation of Mitigation Measures MM 4.1-5 through MM 4.1-7, glare-related impacts would be reduced to less than significant.

Mitigation Measures

MM 4.1-5: Prior to commencement of project operations of the solar facility, the project proponent shall demonstrate to Kern County Planning and Natural Resources Staff, through the submittal of a lighting plan, that the project site complies with the applicable provisions of the Dark Skies Ordinance (Chapter 19.81 of the Kern County Zoning Ordinance) and shall be designed to provide the minimum illumination needed to achieve safety and security objectives. All lighting shall be directed downward and shielded to focus illumination on the desired areas only and avoid light trespass into adjacent areas. Lenses and bulbs shall not be exposed or extend below the shields.

MM 4.1-6: Prior to the issuance of building permits, the project proponent shall demonstrate that the solar panels and hardware are designed to minimize glare and spectral highlighting. Emerging technologies shall be used, such as diffusion coatings and nanotechnological innovations, to effectively reduce the refractive index of the solar cells and protective glass. These technological advancements are intended to make the solar panels more efficient with respect to converting incident sunlight into electrical power while also reducing the amount of glare generated by the panels. Specifications of such designs shall be submitted to the Kern County Planning and Natural Resources Department.

MM 4.1-7: Prior to commencement of project operations of the solar facility, the project operator shall demonstrate that all on-site buildings utilize non-reflective materials, as approved by the Kern County Planning and Natural Resources Department.

Level of Significance after Mitigation

Impacts would be less than significant.

4.1.5 Cumulative Setting, Impacts, and Mitigation Measures

As shown in **Table 3-5:** *Cumulative Projects*, in Chapter 3, *Project Description,* there are four planned projects within 1-mile of the Project site and 11 projects within 6-miles of the Project site. See **Figure 3-12:** *Cumulative Projects Map,* for a visual representation of the spatial distribution of these projects in relation to the Buttonbush Solar and Storage Project.

Currently, there are no federal, state, or locally recognized scenic vistas within the cumulative Project site. Therefore, when added to other surrounding projects, the proposed solar PV and BESS facility would not result in significant impacts related to the creation of a substantial adverse effect on a scenic vista during construction, operation, or decommissioning.

There is no potential for cumulative impacts regarding damage to scenic resources within a scenic highway, as there are no officially designated state or county scenic highways in the cumulative Project site.

In regard to degrading the visual character or quality of public views, in combination with other projects, the proposed Project and other projects included in the analysis of cumulative impacts are anticipated to modify the agricultural character of the region by introducing solar facilities to an otherwise open valley floor. The removal of vegetation and introduction of dark materials and infrastructure, such as solar panels and gen-tie lines, would create visual contrast with the surrounding lighter-toned agricultural landscape, even from a distance. These new elements would noticeably alter existing views, obstruct open valley landscape, and introduce features not currently dominant in the area. Even with implementation of Mitigation Measure MM 4.1-3, which requires a color scheme and treatment plan for the greatest blending of the proposed Project with the current landscape, the facilities would still obstruct views and, in combination with other projects, would alter the visual character. The introduction of solar facilities upon existing vegetation would replace seasonal coloration of agricultural crops which currently define existing landscapes.

The proposed Project, along with other projects included in the analysis of cumulative impacts, would introduce new sources of light and glare to the area that is subject to the analysis of cumulative impacts. However, the proposed Project would be to Mitigation Measures MM 4.1-5 through MM 4.1-7, which require compliance with Kern County's Dark Skies Ordinance, the use of hardware that is designed to minimize glare and spectral highlighting, and the use of non-reflective materials on buildings and facilities. Further, other projects included in the analysis of cumulative impacts would be subject to similar or the same types of Project-specific mitigation measures and would be required to adhere to Kern County's Dark Skies Ordinance, which would reduce lighting impacts.

Midway Substation Upgrades

As described above in Impact 4.1-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation.

As stated above, the Project site—including, but not limited to, the Midway Substation site—is not located within the vicinity of a federal, state, or locally designated scenic vista and, therefore, does not have the potential to contribute to cumulative impacts involving a scenic vista. Similarly, development of the Midway Substation site would not be visible from an Officially Designated State Scenic Highway and, therefore, does not have the potential to contribute to cumulative impacts to scenic resources that are visible from an Officially Designated State Scenic Highway.

As described above, much of the development at the Midway Substation site would be located behind a perimeter wall that would block views of the development from surrounding public viewing locations, and new facilities that would be visible from public viewing locations would be similar to existing development at the Midway Substation site in terms of their height, colors, surface materials, and design.

The Midway Substation development would introduce new sources of light and glare which would be in addition to new sources of light and glare from projects included in the analysis of cumulative impacts. However, Mitigation Measures MM 4.1-5 and MM 4.1-6 would require compliance with Kern County's Dark Skies Ordinance and the use of hardware that is designed to minimize glare. Further, other projects included in the analysis of cumulative impacts would be subject to similar or the same types of Project-specific mitigation measures and would be required to adhere to Kern County's Dark Skies Ordinance, which would reduce lighting impacts.

Summary

The proposed Project would not make a cumulatively considerable contribution to a significant cumulative impact involving a federal, state, or locally recognized scenic vista, or scenic resource within view from a designated scenic highway. However, despite the implementation of Mitigation Measures MM 4.1-1 through MM 4.1-4, the proposed Project would make a cumulatively considerable contribution to significant cumulative impacts involving alterations to existing public views of agrarian, bucolic landscapes. Finally, with implementation of Mitigation Measures MM 4.1-5 through MM 4.1-7, the proposed Project will not make a cumulatively considerable contribution to significant cumulative impacts regarding new light and glare.

Mitigation Measures

Implement Mitigation Measures MM 4.1-1 through MM 4.1-7, as described above.

Level of Significance after Mitigation

Impacts from lighting and glare would be less than significant. However, impacts to visual character and public views would be significant and unavoidable, despite mitigation. No impacts would occur regarding any Federal, state, or locally recognized scenic vista or scenic resource within view from a designated state highway.

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Section 4.2

Agriculture and Forestry Resources

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Section 4.2
Agriculture and Forestry Resources

4.2.1 Introduction

This section of the Draft Environmental Impact Report (EIR) describes the affected environment and regulatory setting for agriculture and forestry resources. It also describes the impacts to agriculture and forestry resources that would result from implementation of the proposed Buttonbush Solar and Storage Project (proposed Project), and includes mitigation measures that would reduce these impacts, where applicable.

This section is largely based on information provided in the Farming History Report, prepared by Dudek (Appendix B of this Draft EIR), The 2023 Kern County Agricultural Crop Report and the Department of Conservation's Important Farmland Map were also utilized as supplemental information.

4.2.2 Environmental Setting

Regional Setting

Kern County is California's third largest county by land area located at the southern end of the San Joaquin Valley of Central California. Kern County covers approximately 8,161 square miles (5,223,040 acres), of which approximately 1,339 square miles (847,383 acres) were used for agricultural production in 2023 (Appendix B). In 2022, Kern County was ranked third in the State for agricultural production. In 2023, the total gross value of all agricultural commodities produced in Kern County totaled $8,626,533,000 (**Table 4.2-1:** *Agricultural Product Values for Kern County in 2023*), which is a 12 percent increase in crop value from 2022 ($7,724,166,300). The top five commodities in 2023 were grapes, citrus, pistachios, almonds, and carrots, which make up more than $5 billion (66 percent) of Kern County total value of agriculture production (Kern County Department of Agriculture 2023), as listed in **Table 4.2-1:** *Agricultural Product Values for Kern County in 2023*.

Table 4.2-1: Agricultural Product Values for Kern County in 2023

Product	Total Value
Fruit and Nut Crops	$5,256,937,000
Grapes	$1,619,193,000
Citrus	$1,277,330,000
Pistachios	$1,003,096,000
Almonds	$892,289,000
Field Crops & Rangeland	$324,113,000
Vegetable Crops	$1,406,521,000
Carrots	$858,901,000
Nursery Crops	$146,661,000
Industrial and Wood Crops	$15,527,000
Seed Crops	$8,929,000
Livestock and Poultry	$625,119,000
Livestock and Poultry Products	$744,928,000
Apiary Products	$97,798,000
TOTAL	**$8,626,533,000**

Source: Kern County Department of Agriculture 2023

Farmland Conversion

According to the Department of Conservation's (DOC) most recent Farmland Conversion Report, California's irrigated farmland decreased by 56,186 net acres between 2016 and 2018. The highest-quality farmland, known as Prime Farmland, decreased by a total of 38,683 net acres, a 111 percent increase from the last update (Appendix B). Urban and Built-up land increased by 37,583 net acres during this period, taking 11,465 acres out of irrigated farmland (Prime, Statewide, and Unique Farmland). There was a 11,165-acre net loss during 2014 to 2016.

Kern County is a growing region and like many agriculturally-based jurisdictions throughout California, must balance urbanization and farmable land. In 2022, Kern County contained roughly 856,329 acres of Important Farmland as identified by the DOC's Farmland Mapping and Monitoring Program (FMMP), which is a reduction of 12,383 acres from 2020. Specifically, between 2020 and 2022, there was a net acreage loss of 9,533 acres of Prime Farmland, 2,149 acres of Farmland of Statewide Importance, and 701 acres of Unique Farmland (DOC 2025). (See Section 4.2.3, *Regulatory Setting*, for the definitions of these farmland types.)

By the year 2020, the County's population size reached 909,235 people and it is anticipated that between 2020 and 2030, the population will continue to grow by nearly 13 percent (Kern County 2024). While the population size in Kern County is anticipated to reach 953,597 by 2046, very little conversion of the most productive agricultural lands has occurred in outlying areas of the County (DOC 2024; Kern COG 2022). This may be attributed to local government efforts to balance urban expansion on economically viable farmland (Kern COG 2022).

Local Setting

Important Farmland

The Project site consists of 5,784 acres of Prime Farmland, 4,128 acres of Farmland of Statewide Importance, and 670 acres of Unique Farmlands, for a total of 10,582 acres of Important Farmland, as designated by the DOC FMMP. While the Project site contains 10,582 acres of Important Farmland pursuant to the California Environmental Policy Act (CEQA) (Prime, Farmland of Statewide Importance, and Unique Farmlands) a total of 10,450 acres of the Project site were in agricultural production in 2023 (Appendix B). These Important Farmland totals are listed below in **Table 4.2-2:** *FMMP Designated Important Farmland within the Project Site*, and illustrated below, in **Figure 4.2-1:** *Kern County California Important Farmland*.

Table 4.2-2: FMMP Designated Important Farmland within the Project Site

FMMP Designation	Sum of Acreage	Percent of Project Site[1]
Prime Farmland	5,784.16	48.3
Farmland of Statewide Importance	4,128.0	34.4
Unique Farmland	670.0	5.6
Subtotal	**10,582**	**88.3**
Grazing[2]	590.14	4.9
Other Land[2]	876.3 810.67	6.8
Subtotal	**1,400.81**	**11.7**
Total	**11,983**	**100**

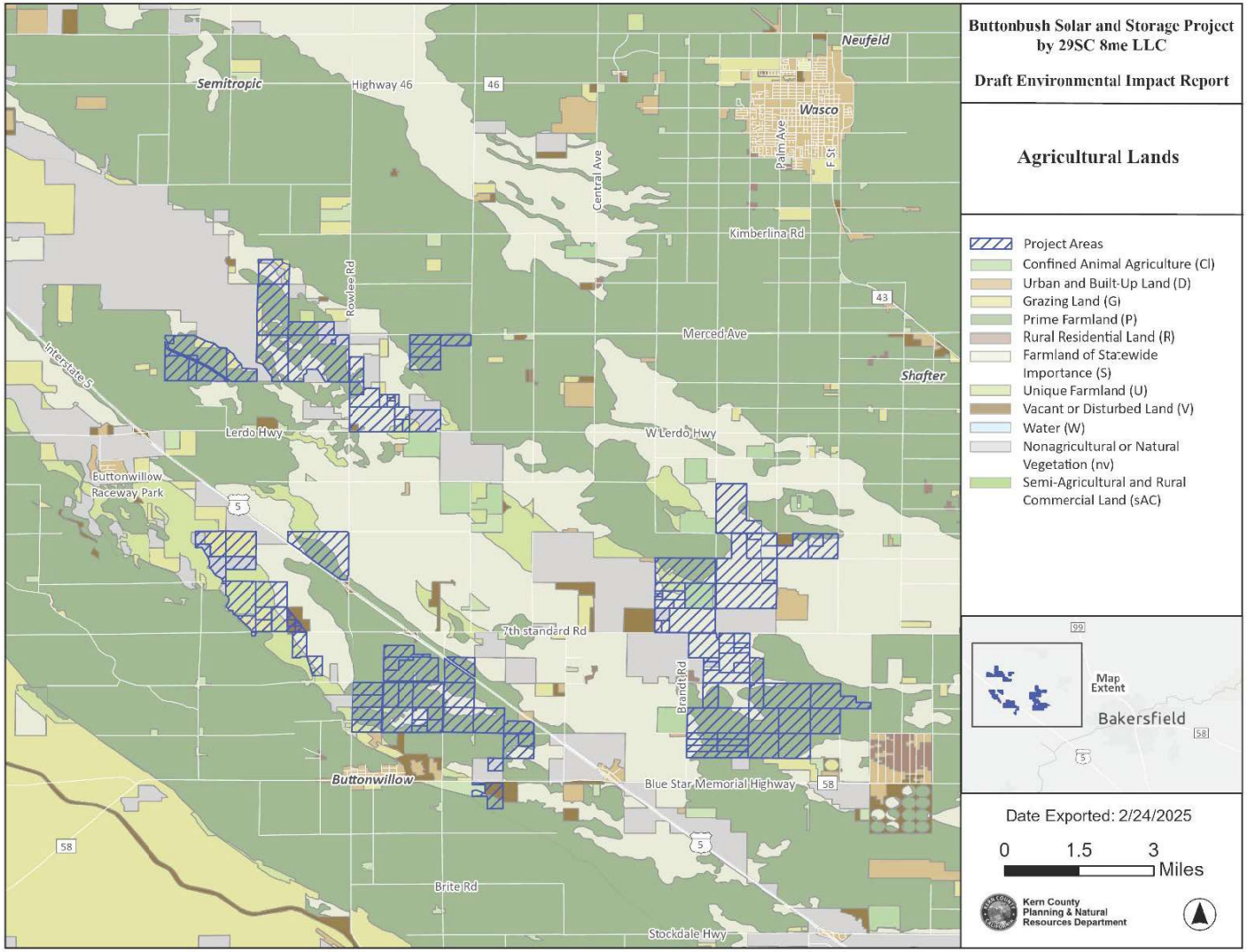
Source: Dudek 2024

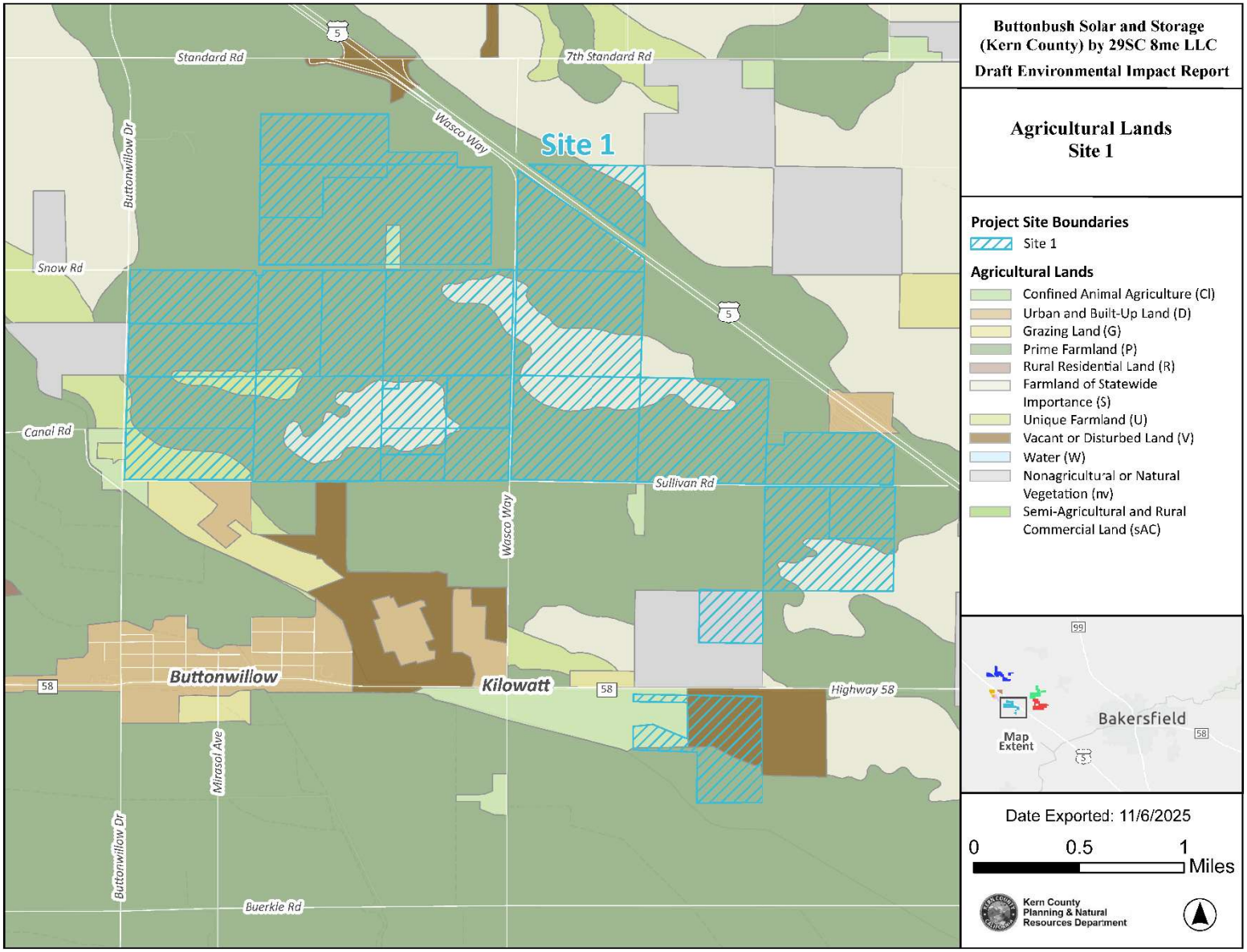
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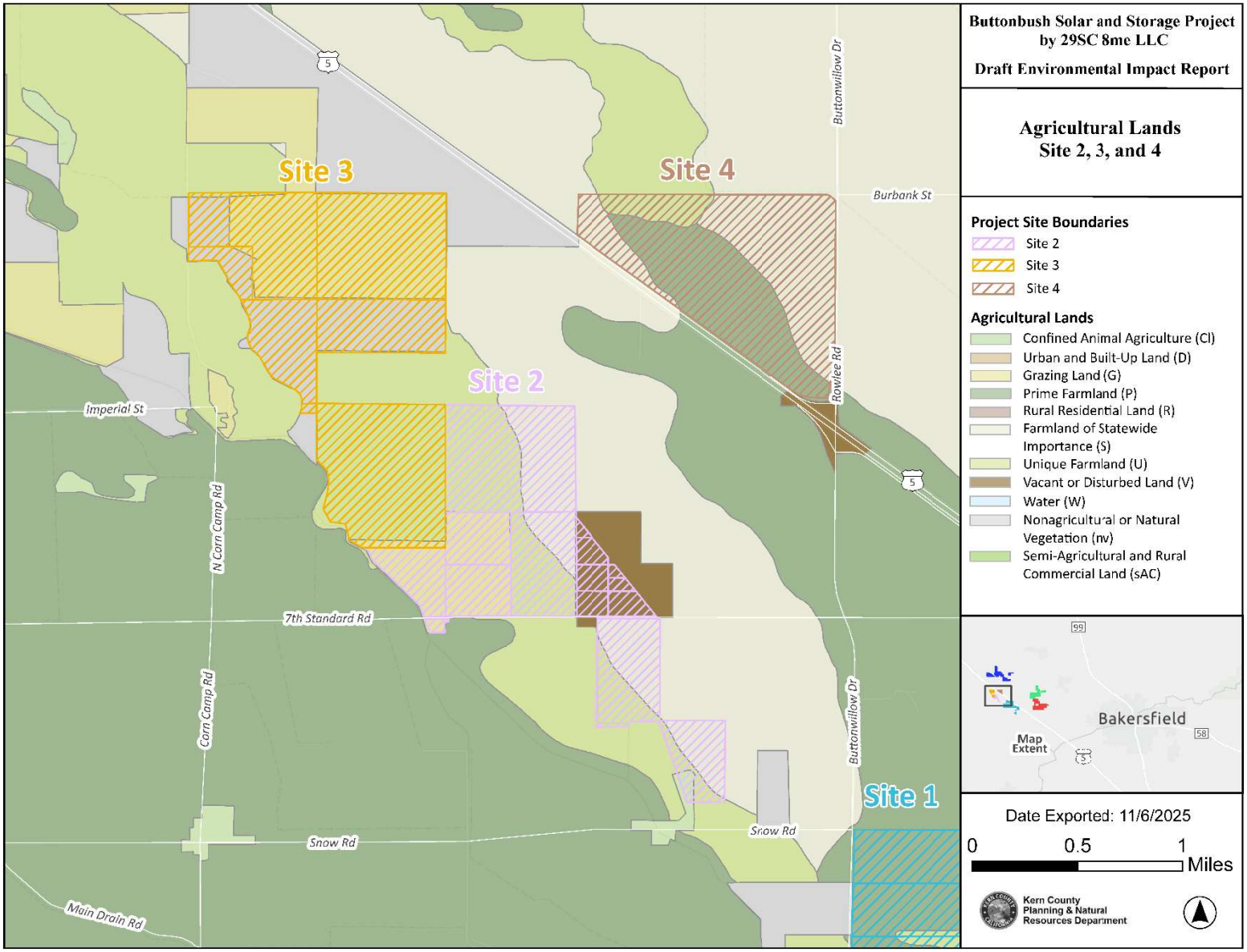
[1] Percentages were calculated using 11,983 project acres and may not add up due to rounding.

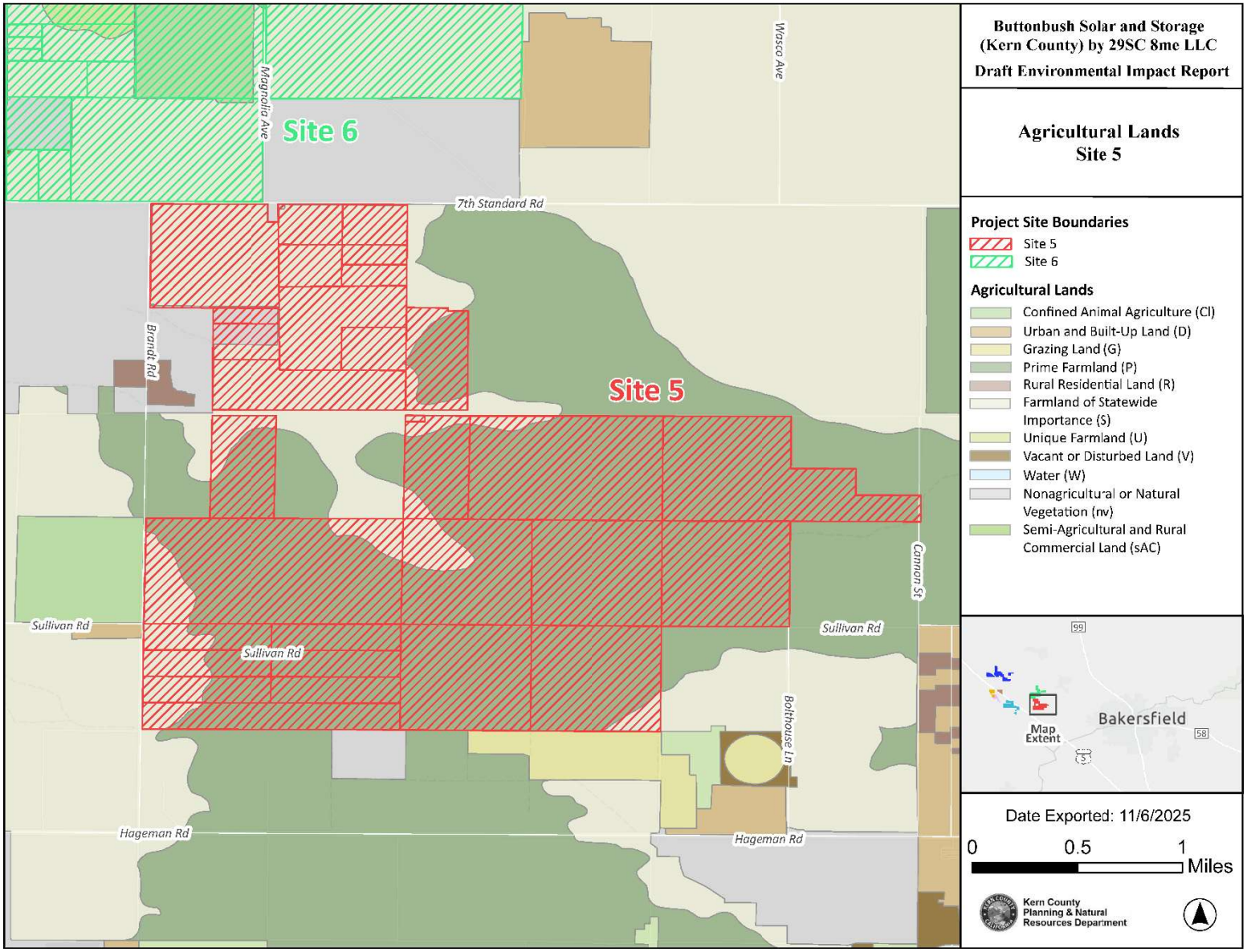
[2] Not considered "Important Farmland" pursuant to CEQA. Other land includes Semi-Agricultural and Rural Commercial Land, Urban and Built-Up Land, Vacant Land, Confined Animal Agriculture, and Nonagricultural or Natural Vegetation.

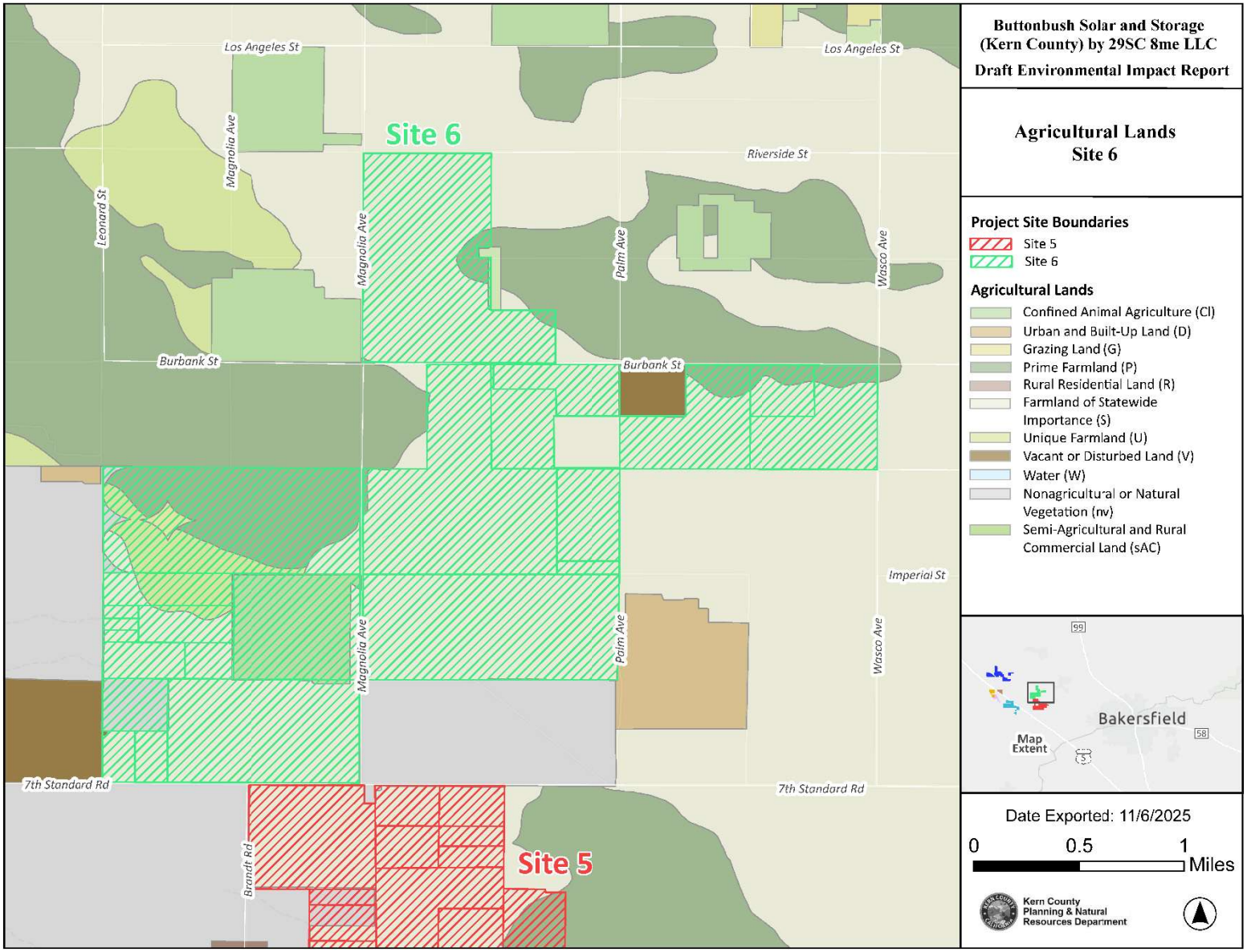
Figure 4.2-1: Agricultural Lands

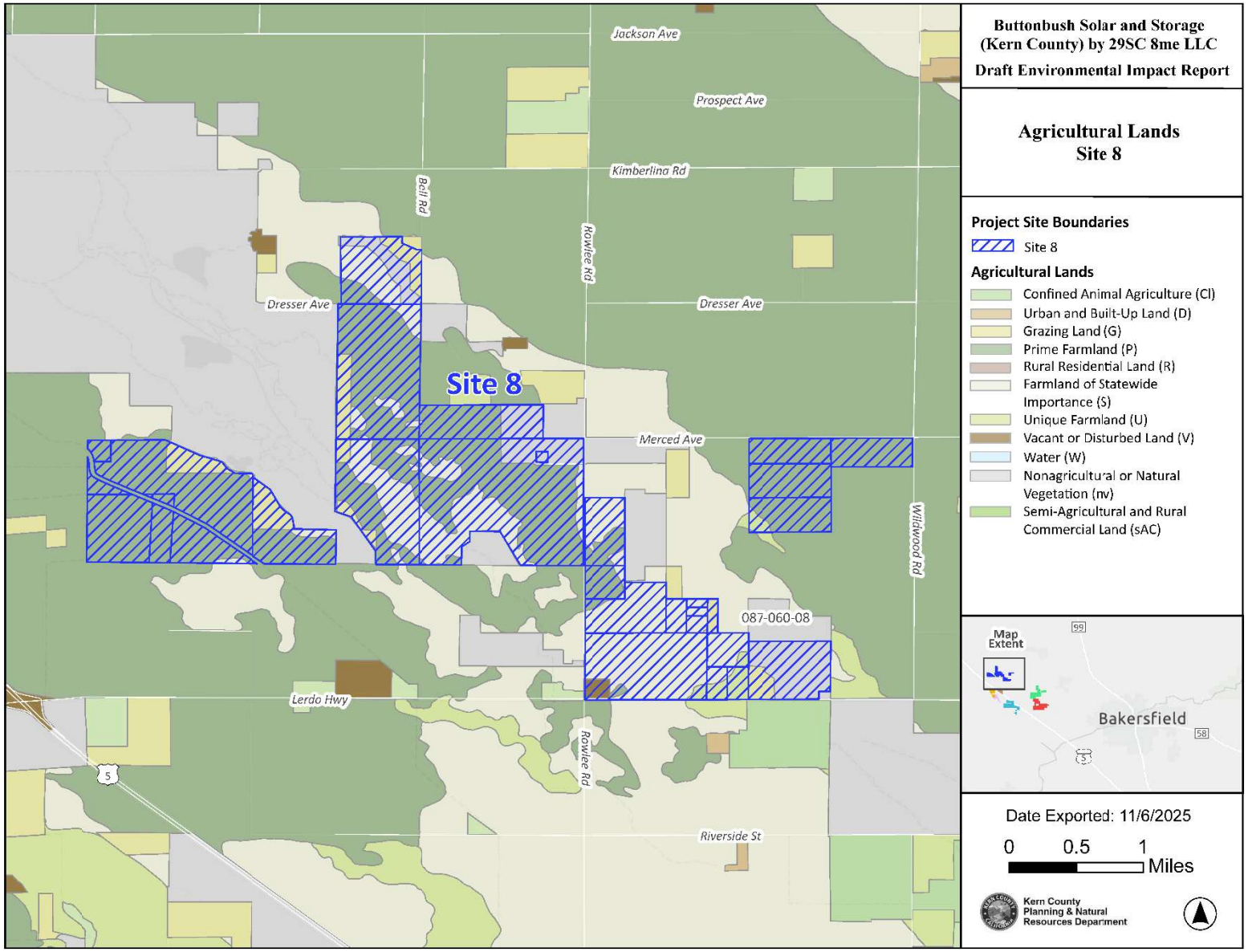



Buttonbush Solar and Storage
(Kern County) by 29SC 8me LLC
Draft Environmental Impact Report
Agricultural Lands
Site 1
Project Site Boundaries
Site 1
Agricultural Lands
Confined Animal Agriculture (CI)
Urban and Built-Up Land (D)
Grazing Land (G)
Prime Farmland (P)
Rural Residential Land (R)
Farmland of Statewide Importance (S)
Unique Farmland (U)
Vacant or Disturbed Land (V)
Water (W)
Nonagricultural or Natural Vegetation (nv)
Semi-Agricultural and Rural Commercial Land (sAC)
Standard Rd
7th Standard Rd
Wasco Way
Site 1
Buttonwillow Dr
Snow Rd
Canal Rd
Sullivan Rd
Wasco Way
Buttonwillow
Kilowatt
Highway 58
Mirasol Ave
Buttonwillow Dr
Buerkle Rd
Bakersfield
Map Extent
Date Exported: 11/6/2025
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Kern County Planning & Natural Resources Department


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Site 2, 3, and 4
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Site 4
Site 2
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Urban and Built-Up Land (D)
Grazing Land (G)
Prime Farmland (P)
Rural Residential Land (R)
Farmland of Statewide Importance (S)
Unique Farmland (U)
Vacant or Disturbed Land (V)
Water (W)
Nonagricultural or Natural Vegetation (nv)
Semi-Agricultural and Rural Commercial Land (sAC)
Buttonwillow Dr
Burbank St
Rowlee Rd
Imperial St
N Corn Camp Rd
Corn Camp Rd
7th Standard Rd
Snow Rd
Main Drain Rd
Bakersfield
Map Extent
Date Exported: 11/6/2025
0 0.5 1 Miles
Kern County Planning & Natural Resources Department


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Agricultural Lands
Site 5
Project Site Boundaries
Site 5
Site 6
Agricultural Lands
Confined Animal Agriculture (CI)
Urban and Built-Up Land (D)
Grazing Land (G)
Prime Farmland (P)
Rural Residential Land (R)
Farmland of Statewide Importance (S)
Unique Farmland (U)
Vacant or Disturbed Land (V)
Water (W)
Nonagricultural or Natural Vegetation (nv)
Semi-Agricultural and Rural Commercial Land (sAC)
Site 6
Site 5
Wasco Ave
Magnolia Ave
7th Standard Rd
Brandt Rd
Cannon St
Sullivan Rd
Sullivan Rd
Sullivan Rd
Bolthouse Ln
Hageman Rd
Hageman Rd
Bakersfield
Map Extent
99
58
5
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Kern County
Planning & Natural
Resources Department


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Site 6
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Site 5
Site 6
Agricultural Lands
Confined Animal Agriculture (CI)
Urban and Built-Up Land (D)
Grazing Land (G)
Prime Farmland (P)
Rural Residential Land (R)
Farmland of Statewide Importance (S)
Unique Farmland (U)
Vacant or Disturbed Land (V)
Water (W)
Nonagricultural or Natural Vegetation (nv)
Semi-Agricultural and Rural Commercial Land (sAC)
Site 6
Site 5
Los Angeles St
Riverside St
Burbank St
Imperial St
7th Standard Rd
Magnolia Ave
Leonard St
Palm Ave
Wasco Ave
Brandt Rd
Bakersfield
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Kern County Planning & Natural Resources Department


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Agricultural Lands
Site 8
Project Site Boundaries
Site 8
Agricultural Lands
Confined Animal Agriculture (CI)
Urban and Built-Up Land (D)
Grazing Land (G)
Prime Farmland (P)
Rural Residential Land (R)
Farmland of Statewide Importance (S)
Unique Farmland (U)
Vacant or Disturbed Land (V)
Water (W)
Nonagricultural or Natural Vegetation (nv)
Semi-Agricultural and Rural Commercial Land (sAC)
Jackson Ave
Prospect Ave
Kimberlina Rd
Bell Rd
Rowlee Rd
Dresser Ave
Dresser Ave
Site 8
Merced Ave
Wilwood Rd
087-060-08
Lerdo Hwy
Rowlee Rd
Riverside St
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Kern County Planning & Natural Resources Department

Williamson Act and Farmland Security Zone Contracts

The Project site is located within Kern County Agriculture Preserves No. 6, No. 8, and No. 9. Approximately 10,689 acres of the approximately 11,983 total project acres (13,868 gross acres) are subject to active Williamson Act and Farmland Security Zone contracts, as shown in **Table 4.2-3:** *Williamson Act Land Use Contract (WALUC) and Farmland Security Zone (FSZ) Cancellations* and illustrated in **Figure 4.2-2:** *Williamson Act Land Use Contracts*. Because a utility scale solar facility is not listed as a compatible use in Kern County's Williamson Act Standard Uniform Rules, the proposed Project would not be consistent with the existing Williamson Act contracts, and the cancellation or nonrenewal of applicable contracts is required for 10,689 acres of farmland.

Table 4.2-3: Williamson Act Land Use Contract (WALUC) and Farmland Security Zone (FSZ) Cancellations

WALUC/FSZ Cancellation Number	Landowner	Kern County Recorded Document Number	Original Contract Date	Status	Tax Assessor Parcel Numbers (APNs)	Acreage to be Removed
Site 1						
24-03	Hill Ranch Group, LLC	0197173644	12/15/1997	Prime: Non-Renewal (in progress)	100-100-19 100-100-26 100-100-27 100-100-29	310
24-04	Hill Ranch Group, LLC	0197173645	12/15/1997	Prime: Non-Renewal (in progress)	100-100-07 100-100-08 100-100-09 100-100-10	237
24-05	Toretta LTD I, LP	0214158124	12/16/2014	FSZ: Non-Renewal (in progress)	100-100-05 100-100-06 100-100-03	235
24-18	Starrh Ranch, LLC	Book 4272 Page 947	02/27/1969	Prime: Non-Renewal (in progress)	100-100-31 100-100-32	158
24-27	Ainhoa Land Holdings LP	Book 4640 Page 687	02/28/1972	Prime: Non-Renewal (in progress)	103-030-45 103-030-46	142
24-28	The Philip Portwood Family Trust	Book 4640 Page 687	02/28/1972	Prime: Non-Renewal (in progress)	103-040-02 103-040-14 103-040-24 103-100-01 103-100-02	631
24-33	Starrh Ranch LLC	Book 5008 Page 800	02/15/1977	Prime: Non-Renewal (in progress)	100-010-13 100-010-14 100-010-22	358
					SITE 1 SUBTOTAL	**2,071**

Table 4.2-3: Williamson Act Land Use Contract (WALUC) and Farmland Security Zone (FSZ) Cancellations

WALUC/FSZ Cancellation Number	Landowner	Kern County Recorded Document Number	Original Contract Date	Status	Tax Assessor Parcel Numbers (APNs)	Acreage to be Removed
Site 2						
24-07	Palla Alfred Jr & Janette Family Trust et al	0205320977	11/08/2005	Prime: Non-Renewal (in progress)	087-200-16 087-200-28 087-200-29 087-200-31 087-200-54	35
24-08	Bittleston Allan & Lynda Rev Tr	0210065031	05/11/2010	Prime: Non-Renewal (in progress)	100-020-19	128
24-26	Louis Andreotti Jr	Book 4640 Page 637	02/28/1972	Prime: Non-Renewal (in progress)	087-200-05 087-200-39	80
24-34	Bonnie & David Bloemhof LLC et al	Book 5737 Page 2231	02/25/1985	Prime: Non-Renewal (in progress)	087-200-02	160
					SITE 2 SUBTOTAL	**403**
Site 3						
24-22	Fred Palla Farms Inc	Book 4372 Page 832	02/20/1970	Prime: Non-Renewal (in progress)	087-170-12	120
24-26*	Louis Andreotti Jr	Book 4640 Page 637	02/28/1972	Prime: Non-Renewal (in progress)	087-160-19	80
24-29	Palla Alfred Jr. & Janette Family Trust et al	Book 4640 Page 849	02/28/1972	Prime: Non-Renewal (in progress)	087-200-35	195
24-30	Houchin Wallace & Janice Family Trust,	Book 4771 Page 47	02/13/1973	Prime: Non-Renewal (in progress)	087-160-01	160
24-32	Sage Creek Ranch LLC	Book 4883 Page 396	02/18/1975	Prime: Non-Renewal (in progress)	087-170-04 087-170-13 087-210-10	89
					SITE 3 SUBTOTAL	**644**

Table 4.2-3: Williamson Act Land Use Contract (WALUC) and Farmland Security Zone (FSZ) Cancellations

WALUC/FSZ Cancellation Number	Landowner	Kern County Recorded Document Number	Original Contract Date	Status	Tax Assessor Parcel Numbers (APNs)	Acreage to be Removed
Site 4						
24-25	A J Parsons & Family LTD PTP	Book 4495 Page 483	02/04/1971	Prime: Non-Renewal (in progress)	087-160-53	395
					SITE 4 SUBTOTAL	**395**
Site 5						
24-09	Affentranger Farms, LLC	0195144320	11/20/1995	Prime & Mixed: Non-Renewal (in progress)	103-010-21 103-010-39 103-010-40 103-070-13 103-070-14	136
24-10	3&1 Farms Inc	Book 4165 Page 883	02/29/1968	Prime: Non-Renewal (in progress)	103-010-43	75
24-14	Bushnell Jon R & Julia Bushnell Rev Family Trust	Book 4249 Page 941	02/27/1969	Prime: Non-Renewal (in progress)	103-060-04	79
24-23	Affentranger Farms LLC	Book 4491 Page 96	12/04/1970	Prime: Non-Renewal (in progress)	103-060-05	318
24-24	Affentranger Ranches	Book 4493 Page 418	12/02/1970	Prime: Non-Renewal (in progress)	103-060-10 104-050-08	398
24-37	Affentranger Farms LLC	Book 6085 Page 0877	01/04/1988	Prime: Non-Renewal (in progress)	103-010-18 103-010-19 103-010-20 103-010-25 103-010-28 103-010-30 103-010-31 103-010-32	494
24-38	Affentranger Ranches	Book 6085 Page 0888	01/04/1988	Prime: Non-Renewal (in progress)	103-060-08 103-060-09 103-060-11 103-060-12 104-050-01	617
24-39	Affentranger Ranches	Book 6085 Page 0897	01/04/1988	Prime: Non-Renewal (in progress)	103-070-07 103-070-08	320

Table 4.2-3: Williamson Act Land Use Contract (WALUC) and Farmland Security Zone (FSZ) Cancellations

WALUC/FSZ Cancellation Number	Landowner	Kern County Recorded Document Number	Original Contract Date	Status	Tax Assessor Parcel Numbers (APNs)	Acreage to be Removed
24-40	Affentranger Brothers	Book 6992 Page 1078	02/14/1994	Prime: Non-Renewal (in progress)	103-070-15 103-070-16 103-070-17 103-070-18 103-070-19	241
					SITE 5 SUBTOTAL	**2,678**
Site 6						
24-02	Sill Properties Inc	218162800	12/04/2018	Prime: Non-Renewal (in progress)	088-180-02 088-210-01	635
24-17	Sill Properties Inc	Book 4272 Page 884	03/31/1969	Prime: Non-Renewal (in progress)	088-180-11	39
24-20	Tjaarda Ranches LLC	Book 4371 Page 254	02/24/1970	Prime: Non-Renewal (in progress)	088-190-20	318
24-21	Ohanneson Section 23 Farmland LLC	Book 4371 Page 367	02/24/1970	Prime: Non-Renewal (in progress)	088-150-01	352
24-31	Sill Properties Inc	Book 4827 Page 1330	02/19/1974	Prime: Non-Renewal (in progress)	088-180-10 088-180-12 088-180-34	297
					SITE 6 SUBTOTAL	**1,641**
Site 8						
24-11	Gooselake Holding Co	Book 4247 Page 680	02/21/1969	Mixed: Non-Renewal (in progress)	087-040-07	543
24-12	Gooselake Holding Co	Book 4247 Page 783	02/21/1969	Prime & Mixed: Non-Renewal (in progress)	087-040-01 087-050-18 087-050-28 087-050-29 087-050-38	885
24-13	Gooselake Holding Co.	Book 4248 Page 434	02/21/1969	Prime & Mixed: Non-Renewal (in progress)	069-340-28 069-350-09	435
24-15	Tracy Ranch Inc	Book 4251 Page 457	02/28/1969	Prime: Non-Renewal (in progress)	087-060-01 087-060-14 087-060-15	374

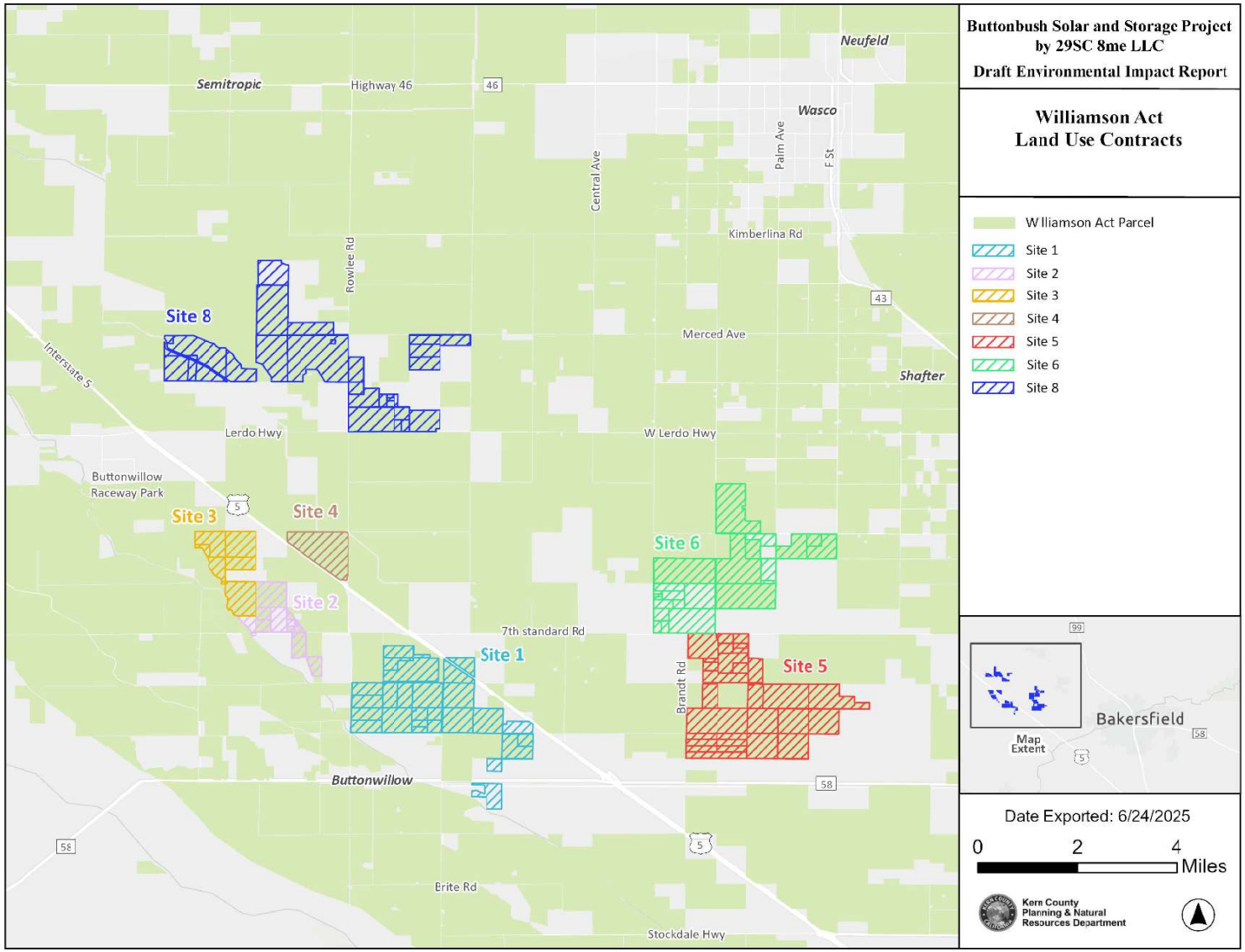
Table 4.2-3: Williamson Act Land Use Contract (WALUC) and Farmland Security Zone (FSZ) Cancellations

WALUC/FSZ Cancellation Number	Landowner	Kern County Recorded Document Number	Original Contract Date	Status	Tax Assessor Parcel Numbers (APNs)	Acreage to be Removed
24-16	Tracy Ranch Inc	Book 4251 Page 529	02/28/1969	Prime: Non-Renewal (in progress)	087-060-05 087-060-07 087-060-12	45
24-19	B&E Romanini Investments LP and Romanini Family LP	Book 4370 Page 306	02/16/1970	Prime: Non-Renewal (in progress)	087-010-18 087-010-20 087-010-22 087-020-01	287
24-35	Tracy Ranch Inc	Book 5845 Page 1410	02/10/1986	Prime & Mixed: Non-Renewal (in progress)	087-060-08 087-060-11 087-060-13 087-060-39	206
24-36	Gooselake Holding Co	Book 5845 Page 1419	02/10/1986	Prime: Non-Renewal (in progress)	087-010-11 087-060-06	83
					SITE 8 SUBTOTAL	**2,858**
					TOTAL	**10,689**

Note: *24–26 includes Contract parcels in both Site 2 and Site 3

Due to rounding, totals may not sum precisely.

Figure 4.2-2: Williamson Act Land Use Contracts



Project Site Kern County General Plan Land Use Designations

As discussed in Chapter 3, *Project Description*, the Project site is located in an area with Land Use Map Codes (Land Use Designation) for agricultural uses. (Also, see Section 4.11*, Land Use and Planning,* for further discussion on land use planning in Kern County.) These land use designations are present within and surrounding the Project site, and are defined as follows:

- 4.1 Accepted Community Plan Area — Buttonwillow Community Development Plan
- 8.1 / 2.3 Intensive Agriculture / Shallow Groundwater — Agricultural uses dedicated to the production of irrigated crops, or having a potential for such use. Minimum parcel size is 20 acres gross. Uses shall include, but are not limited to, the following: irrigated cropland; orchards; vineyards; horse ranches; raising of nursery stock ornamental flowers and Christmas trees; fish farms, bee keeping, ranch and farm facilities, and related uses; one single-family dwelling unit; cattle feed yards; dairies; dry-land farming; livestock grazing; water storage; groundwater recharge acres; mineral, aggregate, and petroleum exploration and extraction; hunting clubs; wildlife preserves; farm labor housing; public utility uses; and agricultural industries pursuant to provisions of the Kern County Zoning Ordinance, and land within development areas subject to significant physical constraints. Shallow groundwater is a constraint overlay designated for lands that contain specific site conditions deemed a constraint.
- 8.3 Extensive Agriculture — Agricultural uses involving large amounts of land with relatively low value-per-acre yields, such as livestock grazing, dry-land farming, and woodlands. Minimum parcel size is 20 acres gross, except lands subject to a Williamson Act Contract/Farmland Security Zone Act Contract, in which case the minimum parcel size shall be 80 acres gross. Uses shall include, but are not limited to, the following: livestock grazing; dry-land farming; ranching facilities; wildlife and botanical preserves; timber harvesting; one single-family dwelling unit; irrigated croplands; water storage or groundwater recharge areas; mineral, aggregate, and petroleum exploration and extraction; recreational activities, such as gun clubs and guest ranches; and land within development areas subject to significant physical constraints.
- 8.4 Mineral and Petroleum — Areas that contain producing or potentially productive petroleum fields, natural gas, and geothermal resources, and mineral deposits of regional and statewide significance. Uses are limited to activities directly associated with the resource extraction. Minimum parcel size is 5 acres gross. Uses shall include, but are not limited to, the following: mineral and petroleum exploration and extraction, including aggregate extraction; extensive and intensive agriculture; mineral and petroleum processing, excluding petroleum refining; natural gas and geothermal resources; pipelines; power transmission facilities; communication facilities; equipment storage yards; and borrow pits.
- 8.5 Resource Management — Primarily open-space lands containing important resource values, such as wildlife habitat, scenic values, or watershed recharge areas. These areas may be characterized by physical constraints or may constitute an important watershed recharge area or wildlife habitat or may have value as a buffer between resource areas and urban areas. Other lands with this resource attribute are undeveloped, non-urban areas that do not warrant additional planning within the foreseeable future because of current population (or anticipated

increase), marginal physical development, or no subdivision activity. Minimum parcel size is 20 acres gross, except lands subject to a Williamson Act Contract/Farmland Security Zone Contract, in which case the minimum parcel size shall be 80 acres gross. Uses shall include, but are not limited to, the following: recreational activities; livestock grazing; dry-land farming; ranching facilities; wildlife and botanical preserves; and timber harvesting; one single-family dwelling unit; irrigated croplands; water storage or groundwater recharge areas; mineral, aggregate, and petroleum exploration and extraction; open space and recreational uses; one single-family dwelling on legal, residentially zoned lots as of the effective date of the Kern County General Plan (KCGP); land within development areas subject to significant physical constraints; state and federal lands which have been converted to private ownership.

Kern County Zoning

The entire Project site is zoned as Exclusive Agriculture (A) under the County's Zoning Classification (Chapter 3, *Project Description*, **Figure 3-6:** *A-E Existing Zoning Designations*), which is consistent with the listed land use designations above. Per the KCGP, certain agricultural uses allowed in the Exclusive Agriculture zone include the growing and harvesting of crops, breeding and raising animals, and some agricultural industries if incidental to primary agricultural uses. Utilities are allowed, such as transmission lines and underground facilities for gas, water, electricity, and telephone services. However, conditional use permits (CUPs) are required for other uses, such as resource extraction and energy development, including cogeneration facilities, electrical power generating plants, solar energy electrical generators when not accessory to a permitted or conditionally permitted use, and wind-driven electrical generators.

4.2.3 Regulatory Setting

Federal

Farmland Protection Policy Act (7 United States Code Section 4201)

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

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

For the purpose of the FPPA, Farmland includes Prime Farmland, Unique Farmland, and farmland of statewide or local importance, defined in 7 U.S.C. Section 4201. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land.

Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency.

State

California Department of Conservation, Division of Land Resource Protection

The California DOC applies the Natural Resources Conservation Service (NRCS) soil classifications to identify agricultural lands. These agricultural designations are used in planning for the present and future of California's agricultural land resources. The DOC has a minimum mapping unit of 10 acres, with parcels that are smaller than 10 acres being absorbed into the surrounding classifications.

The list below provides a comprehensive description of all categories mapped by the DOC (DOC 2022). Collectively, lands classified as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland are referred to as "Farmland" (DOC 2024).

- **Prime Farmland (P):** Irrigated land with the best combination of physical and chemical features able to sustain long-term production of agricultural crops. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been irrigated for production of irrigated crops at some time during the four years prior to the mapping date.
- **Farmland of Statewide Importance (S):** Irrigated land similar to Prime Farmland that has a good combination of physical and chemical characteristics for the production of agricultural crops. This land has minor shortcomings, such as greater slopes or less ability to store soil moisture than Prime Farmland. Land must have been irrigated for production of irrigated crops at some time during the four years prior to the mapping date.
- **Unique Farmland (U):** Lesser quality soils used for the production of the state's leading agricultural crops. This land is usually irrigated but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
- **Farmland of Local Importance (L):** Although counties may choose to define Farmland of Local Importance within their jurisdictions, the Board of Supervisors has determined that there will be no Farmland of Local Importance for Kern County.

- **Grazing Land (G):** Land on which the existing vegetation is suited to the grazing of livestock. This category is used only in California and was developed in cooperation with the California Cattlemen's Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities.
- **Urban and Built-up Land (D):** Land occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public administrative purposes, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- **Other Land (X):** Land not included in any other mapping category. Common examples include low-density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines and borrow pits; and waterbodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as other land.

California Land Conservation Act (Williamson Act)

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act (California Government Code Section 51200-51297.4), is applicable only to specific land parcels within the state. Private land within locally designated agricultural preserve areas is eligible for enrollment under Williamson Act Contracts. The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or compatible uses in return for reduced property tax assessments. The Williamson Act program is administered by the DOC, in conjunction with local governments, which administer the individual contract arrangements with landowners. The landowner commits the parcel to a 10-year period wherein conversion of the land to a nonagricultural use is prohibited. Each year the contract automatically renews unless a notice of non-renewal or cancellation is filed. In return, the land is taxed at a rate based on the actual use of the land for agricultural purposes, as opposed to its unrestricted market value. A landowner can apply for immediate cancellation, provided that the proposed immediate cancellation application is consistent with the cancellation criteria stated in the California Land Conservation Act and those adopted by the affected county or city. Non-renewal or immediate cancellation does not change the zoning of the property. Participation in the Williamson Act program is dependent on county adoption and implementation of the program and is voluntary for landowners.

The Williamson Act states that a board or council by resolution shall adopt rules governing the administration of agricultural preserves. The rules of each agricultural preserve specify the uses allowed. Generally, any commercial agricultural use will be permitted within any agricultural preserve. In addition, local governments may identify compatible uses permitted with a use permit (California Code 2014).

California Government Code Section 51238 states that county boards of supervisors may impose conditions on lands or land uses to be placed within preserves to permit and encourage compatible uses in conformity with Section 51238.1. The Kern County Agricultural Preserve Standard

Uniform Rules specify that the construction and operation of electric utility facilities and similar public service facilities are compatible uses in agricultural preserves.

Further, California Government Code Section 51238.1 allows a county board of supervisors or city council (as applicable) to allow as compatible any use that without conditions or mitigations would otherwise be considered incompatible. However, this may occur only if that use meets the following conditions:

- The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels on other contracted lands in agricultural preserves.
- The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in agricultural preserves. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping.
- The use will not result in the significant removal of adjacent contracted land from agricultural or open-space use.

A Williamson Act Contract cancellation is an option under limited circumstances and conditions set forth in Government Code Section 51280 et seq. In such cases, landowners may petition a board of supervisors or city council (as applicable) for Williamson Act Contract cancellation. The board of supervisors or city council (as applicable) may grant tentative cancellation only if it makes required statutory findings (Government Code Section 51282(a)). If the required findings are met, the landowner is required to pay a cancellation fee equal to 12.5 percent of the cancellation valuation (unrestricted fair market value) of the property (Government Code Section 51283(b)).

California Government Code Section 51282

California Government Code Section 51282 subsections -(a) through -(c) sets forth the following criteria for cancellation of Williamson Act Contracts.

> *(a) The landowner may petition the board* [of supervisors] *or* [city] *council for cancellation of any contract as to all or any part of the subject land. The board* [of supervisors] *or* [city] *council may grant tentative approval for cancellation of a contract only if it makes one of the following findings:*
>
> > *(1) That the cancellation is consistent with the purposes of this chapter.*
> >
> > *(2) That cancellation is in the public interest.*
>
> *(b) For purposes of paragraph (1) of subdivision (a) cancellation of a contract shall be consistent with the purposes of this chapter only if the board* [of supervisors] *or* [city] *council makes all of the following findings:*

(1) That the cancellation is for land on which a notice of nonrenewal has been served pursuant to Section 51245.

(2) That cancellation is not likely to result in the removal of adjacent lands from agricultural use.

(3) That cancellation is for an alternative use which is consistent with the applicable provisions of the city or county general plan.

(4) That cancellation will not result in discontinuous patterns of urban development.

(5) That there is no proximate non-contracted land which is both available and suitable for the use to which it is proposed the contracted land be put, or, that development of the contracted land would provide more contiguous patterns of urban development than development of proximate non-contracted land.

(c) For purposes of paragraph (2) of subdivision (a) cancellation of a contract shall be in the public interest only if the [city] *council or board* [of supervisors] *makes the following findings: (1) that other public concerns substantially outweigh the objectives of this chapter; and (2) that there is no proximate non-contracted land which is both available and suitable for the use to which it is proposed the contracted land be put, or that development of the contracted land would provide more contiguous patterns of urban development than development of proximate non-contracted land.*

As used in this subdivision "proximate, non-contracted land" means land not restricted by contract pursuant to this chapter, which is sufficiently close to land which is so restricted that it can serve as a practical alternative for the use which is proposed for the restricted land.

As used in this subdivision "suitable" for the proposed use means that the salient features of the proposed use can be served by land not restricted by contract pursuant to this chapter. Such non-restricted land may be a single parcel or may be a combination of contiguous or discontinuous parcels.

Farmland Security Zone Act

In 1999, the California State Legislature passed the Farmland Security Zone (FSZ) Act to ensure that long-term farmland preservation is part of public policy. The FSZ Act is similar to the Williamson Act in that it allows property owners to enter into contracts with local governments upon restricting lands to agricultural use. However, the FSZ contract lasts for 20 years, while the standard Williamson Act contract lasts for 10 years. The FSZ provides that a landowner already under a Williamson Act contract can apply for FSZ status by executing a contract with the county. FSZ Act classification automatically renews each year for an additional 20 years. In return for a further 35 percent reduction in the taxable value of land and growing improvements (in addition to Williamson Act tax benefits), the property owner promises not to convert the property to nonagricultural uses.

Public Resources Code Section 21060.1

Public Resources Code Section 21060.1 uses the FMMP to define agricultural land for the purposes of assessing environmental impacts. The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and analyze the conversion of such lands. The FMMP provides analysis pertaining to agricultural land use changes throughout California.

Local

Kern County General Plan

The proposed Project is subject to applicable KCGP policies and measures. The KCGP states that agriculture is vital to the future of Kern County and, consequently, sets forth goals for protecting important agricultural lands for future use and preventing the conversion of prime agricultural lands to other uses (for example, industrial or residential).

The KCGP states that agriculture is vital to the future of Kern County and sets goals to protect important agricultural lands for future use and prevent the conversion of prime agricultural lands to other uses (for example, industrial or residential). The following are Resource land use designations within the adopted General Plan.

- 8.1 Intensive Agriculture (minimum parcel size 20 acres gross) – Lands devoted to the production of irrigated crops or having potential for such use. Uses shall include, but are not limited to, the following: Irrigated cropland; orchards; vineyards; horse ranches; raising of nursery stock ornamental flowers and Christmas trees; fish farms' bee keeping' ranch and farm facilities and related uses; one single-family dwelling unit; cattle feed yards; dairies; dry-land farming; livestock grazing; water storage; groundwater recharge acres; mineral; aggregate; and petroleum exploration and extraction; hunting clubs; wildlife preserves; farm labor housing; public utility uses; and agricultural industries pursuant to provisions of the Kern County Zoning Ordinance, and land within development areas subject to significant physical constraints.
- 8.2 Resource Reserve (minimum parcel size is 20 acres gross, except to a Williamson Act Contract/Farmland Security Zone Contract, in which case the minimum parcel size shall be 80 acres gross) – Lands devoted to areas of mixed natural resource characteristics including rangeland, woodland, and wildlife habitat which occur in an established County water district.
- 8.3 Extnsive Agriculture (minimum parcel size 20 acres gross, except lands subject to a Williamson Act contract/Farmland Security Zone contract, in which case the minimum parcel size shall be 80 acres gross) – Lands devoted to uses involving large amounts of land with relatively low value-per-acre yields such as livestock grazing, dry-land farming, and woodlands.
- 8.4 Mineral and Petroleum (minimum parcel size 5 acres gross) – Areas which contain producing or potentially productive petroleum fields, natural gas, and geothermal resources, and mineral deposits of regional and Statewide significance. Uses are limited to activities directly associated with the resource extraction. Minimum parcel size is five gross acres. Uses shall include, but are not limited to, the following:

  - Mineral and petroleum exploration and extraction, including aggregate extraction; extensive and intensive agriculture; mineral and petroleum processing (excluding petroleum refining); natural gas and geothermal resources; pipelines; power transmission facilities; communication facilities; equipment storage yards; and borrow pits.

- 8.5 Resource Management (minimum parcel size 20 acres gross, except lands subject to a Williamson Act contract/Farmland Security Zone contract, in which case the minimum parcel size shall be 80 acres gross) – Lands consisting primarily of open space containing important resource values, such as wildlife habitat, scenic values, or watershed recharge areas. These areas may be characterized by physical constraints, or may constitute an important watershed recharge area or wildlife habitat or may have value as a buffer between resource areas and urban areas. Other lands with this resource attribute are undeveloped, non-urban areas that do not warrant additional planning within the foreseeable future because of current population (or anticipated increase), marginal physical development, or no subdivision activity. Additionally, the designation of 8.5 (Resource Management) can be used for agricultural uses such as dry-land farming and ranch facilities.

The policies, goals, and implementation measures in the KCGP for Agriculture and Forest Resources applicable to the proposed Project are provided below.

Chapter 1. Land Use, Open Space, and Conservation Element

1.9—Resource

Goals

Goal 1. To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations which will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources, or diminish the other amenities which exist in the County.

Goal 2. Protect areas of important mineral, petroleum, and agricultural resource potential for future use.

Goal 3. Ensure the development of resource areas minimize effects on neighboring resource lands.

Goal 4. Encourage safe and orderly energy development within the County, including research and demonstration projects, and to become actively involved in the decisions and actions of other agencies as they affect energy development in Kern County.

Goal 5. Conserve prime agriculture lands from premature conversion.

Goal 6. Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.

Policies

Policy 1. Appropriate resource uses of all types will be encouraged as desirable and consistent interim uses in undeveloped portions of the County regardless of General Plan designation.

Policy 2. In areas with a resource designation on the General Plan map, only industrial activities which directly and obviously relate to the exploration, production, and transportation of the particular resource will be considered to be consistent with the General Plan.

Policy 5. Areas of low intensity agriculture use (Map Code 8.2 (Resource Reserve), Map Code 8.3 (Extensive Agriculture), Map Code 8.5 (Resource Management)) should be of an economically viable size in order to participate in the State Williamson Act Program/Farmland Security Zone Contract.

Policy 6. Work with other agencies to define regulatory responsibility concerning energy-related issues.

Policy 12. Areas identified by NRCS (formerly Soil Conservation Service) as having high range-site value should be conserved for Extensive Agriculture uses or as Resource Reserve, if located within a County water district.

Policy 16. The County will encourage development of alternative energy sources by tailoring its Zoning and Subdivision Ordinances and building standards to reflect Alternative Energy Guidelines published by the California State Energy Commission.

Implementation Measures

Implementation Measure B. Areas designated as Resource Reserve (Map Code 8.2), Extensive Agriculture (Map Code 8.3), Resource Management (Map Code 8.5) that are under Williamson Act Contracts or Farmland Security Zone Contracts will have a minimum parcel size of 80 acres until such time as a contract is expired or is cancelled, at which time the minimum parcel size will become 20 acres.

Implementation Measure F. Prime agricultural lands, according to the Kern County Interim-Important Farmland 2000 map produced by the DOC, which have Class I or II soils and a surface delivery water system shall be conserved through the use of agricultural zoning with minimum parcel size provisions.

Implementation Measure G. Property placed under the Williamson Act/Farmland Security Zone Contract must be in a Resource designation.

Implementation Measure I: Periodically review the Zoning Ordinance to reflect new technology and energy sources and encourage these types of uses for new development.

Implementation Measure J: The County shall continue to monitor new legislation as it relates to energy production and periodically review the General Plan and Zoning Ordinance for any required updates.

Kern County Zoning Ordinance

The Kern County Zoning Ordinance Title 19 – Zoning establishes basic regulations under which land is developed to promote and protect the public health, safety, and welfare of its residents. This is achieved through the orderly regulation of land uses throughout the unincorporated area of the County. Pursuant to state law, the zoning ordinance must be consistent with the KCGP. The zoning ordinance applies to all property in unincorporated Kern County, except land owned by the United States or any of its agencies. As previously mentioned in Chapter 3, *Project Description*, and as described in Section 4.2.2, *Environmental Setting*, the Kern County Zoning Ordinance designates the Project site as Exclusive Agriculture (A) under the County's Zoning Classification. According to the zoning ordinance, the Exclusive Agriculture designation is applied to areas that are suitable for agricultural uses to prevent the encroachment of incompatible uses onto agricultural lands and premature conversion of such lands to nonagricultural uses. Allowable land uses within this zone include growing and harvesting crops; breeding and raising animals; agricultural industries; single-family dwellings; fruit stands and agricultural supply services; recreation, entertainment, and tourist facilities; utility and communications facilities; resource extraction; waste facilities; institutional/educational uses; and various miscellaneous uses such as animal shelters and clubs.

Solar development is permitted within the Exclusive Agriculture zone with the issuance of a CUP, pursuant to Section 19.12.030.G of the Kern County Zoning Ordinance and the Kern County Agricultural Preserve Standard Uniform Rules.

Williamson Act Standard Uniform Rules

Kern County has adopted a set of Agricultural Preserve Standard Uniform Rules that identify land uses that are considered compatible uses within agricultural preserves established under the Williamson Act. These rules are designed to restrict the uses of land enrolled in a Williamson Act contract to agricultural uses. Agricultural uses include crop cultivation grazing operations, commercial wind farms, livestock breeding, dairies, and uses that are incidental to agricultural uses. Other compatible agricultural uses include those associated with public utilities (for example, gas, electric, communications, water, and other similar public utilities). The proposed conversion of the agricultural lands to a solar facility would not comply with the terms of the existing Williamson Act Contracts that apply to the Project site; therefore, the proposed Project includes applications for the Kern County Board of Supervisors' consideration to cancel these Contracts.

4.2.4 Impacts and Mitigation Measures

Methodology

The proposed Project's potential impacts on agriculture and forestry resources were evaluated, in part, using qualitative methods that considered the Farmland History Report (Appendix B), the 2022 DOC Important Farmland Map, and the DOC 2016-2018 California Farmland Conversion Report. A change in land use is a significant impact if the effects described in the thresholds of significance occur. (See California Code of Regulations Title 14, Section 15064.7(a).) The

evaluation of proposed Project impacts is based on an analysis of the KCGP's applicable goals and policies related to agricultural resources, professional judgment, and CEQA significance criteria.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist state that a project would have a significant impact on agricultural and forestry resources if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to nonagricultural use;
- Conflict with existing zoning for agricultural use or a Williamson Act contract;
- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)) or timberland (as defined in Public Resources Code section 4526) or timberland zoned Timberland Production (as defined by Government Code Section 51104 (g);
- Result in the loss of forest land or conversion of forest land to non-forest use;
- Involve other changes in the existing environment which, because of their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use; and/or
- Result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres.

Project Impacts

Impact 4.2-1: Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to nonagricultural use?

If a project results in the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to a nonagricultural use, then that project may result in a significant impact to agricultural resources. The proposed Project would result in the discontinuance of agricultural uses for approximately 35 years (that is, the life expectancy of some of the proposed photovoltaic (PV) solar infrastructure) with the potential for longer discontinuance if the Project proponent opts to replace and maintain certain infrastructure and continue the proposed PV solar use. This change would constitute a significant impact if it would adversely affect agricultural operations on surrounding and adjacent Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, or if the Project caused, contributed to, or accelerated the conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance within the Project site to a nonagricultural use.

As discussed in Section 4.1, *Aesthetics,* implementation of Mitigation Measure MM 4.1-4 would require that in areas temporarily disturbed during construction would be revegetated with native

seed mix and/or native plants, and also requires that native vegetation shall remain undisturbed unless removal is necessary for the placement and/or construction of facilities. Additionally, implementation of Mitigation Measure MM 4.2-1 would further reduce impacts by limiting the use of herbicides and minimizing potential harm to wildlife, vegetation, and water bodies.

Implementation of other mitigation measures would ensure adjacent Prime Farmland, Unique Farmland, and Farmland of Statewide Importance can continue agricultural operations. For example, Mitigation Measure MM 4.9-1 would require preparation and implementation of a Hazardous Materials Business Plan, which would help ensure the project does not adversely affect agricultural operations on adjacent property resulting from improper handling of hazardous materials. Mitigation Measure 4.10-1 would ensure project construction does not affect agricultural operations on adjacent property during construction by requiring implementation of a stormwater pollution prevention plan. Mitigation Measure 4.2-1 would ensure safe use of any pesticides utilized on the Project site.

Overall, implementation of the proposed Project would result in the conversion of approximately 5,784 acres of land mapped by the DOC as Prime Farmland, approximately 670 acres of Unique Farmland, and approximately 4,128 acres of land mapped as Farmland of Statewide Importance, for a total of 10,582 acres of converted farmland.

The Project site overlies the Kern County Groundwater Subbasin (Subbasin), which has been identified by DWR identifies the Kern County Groundwater Subbasin (Subbasin) as a high-priority, critically over drafted basin. The Project site is located in an area managed by two Groundwater Sustainability Agencies (GSAs) and Groundwater Sustainability Plans (GSPs), including the Kern Groundwater Authority (KGA) GSP and Buena Vista Water Storage District GSP. The majority of the Project site is covered by the KGA GSP. The KGA, through a Joint Powers Agreement, represents 12 member agencies in the Subbasin, including Semitropic Water Storage District (SWSD) and Rosedale-Rio Bravo Water Storage District.

The Project site is located within three water districts: SWSD, Shafter-Wasco Irrigation District's (SWID) 7th Standard Annex, and Rosedale-Rio Bravo Water Storage District. Approximately 80% of the Project site is located within SWSD or SWID. The majority of the Project site is located in the Semitropic Water Storage District (SWSD, the largest water storage district in Kern County,) which water basin, a high-priority basin that is currently critically over drafted overlies the Kern Subbasin. and is experiencing water supply shortages. SWSD is actively planning for ways to reduce water use, one of which is taking active agricultural lands out of production. Like SWSD, SWID's 7th Standard Annex is heavily reliant on groundwater. The Project will decrease water use in the high-priority basin that is currently critically over drafted and in need of significant reductions in pumping to achieve groundwater sustainability. Fallowing farmland within the 7th Standard Annex is a central component of SWID's plan to meet groundwater sustainability requirements. SWID is implementing a water budget that will reduce groundwater consumption from 3AF/acre in 2025 to 0.57 AF/acre in 2040. See Section 4.17, *Utilities and Service Systems*, for greater detail regarding water supply. Under 2030 climate change conditions, the groundwater deficit is projected at 372,120 AF, where the SWSD GSA allocation of that deficit is 162,940 AF (SWSD 2024). Within the SWSD GSA, this represents the potential fallowing of between 42,880

to 58,190 acres of irrigated lands by 2040. The conversion of agricultural lands resulting from the proposed Project would remove 10,582 acres of irrigated Important Farmland for at least approximately 35 years, and possibly longer if the Project proponent opts to extend the life of the proposed solar PV facilities.

The proposed Project would decrease water use in the high-priority basin that is currently critically over drafted and in need of significant reductions in pumping to achieve groundwater sustainability. Given the significant amount of land fallowing required to address groundwater deficits in the area, fallowing of the Project site would fall within the amount of fallowing projected to occur even without Project development. Fallowing lands included within the Project site allows water that would have otherwise been used on the Project site to be used to support agricultural operations on other lands in the area, thereby allowing farming to continue on high value lands.

Given SWSD's position regarding its inability to provide a long-term supply of agricultural water at current demand levels, it is not feasible for the Project site to remain in long-term agricultural production. Without adequate water supplies, it is unlikely the Project site would continue to be considered Prime Farmland or Farmland of Statewide Importance. The DOC maps Prime Farmland and Farmland of Statewide Importance and defines these farmland categories "as lands that must have been used for irrigated agricultural production at some time during the four years prior to the mapping date" (DOC 2022). Without irrigated production of agriculture for a period of four years, the Project site would not meet the definition of Prime Farmland or Farmland of Statewide Importance.

Additionally, the proposed Project is consistent with the County's land use and zoning designations. The Project entails a use that is allowed by the Kern County Zoning Ordinance subject to issuance of a Conditional Use Permit. The proposed Project differs from projects that would require a zone change to change agriculturally zoned land to a non-agriculture zone. The proposed Project is considered consistent and compatible with the underlying existing land use, and zoning and meets the County's development standards. This is further evident by the proposed Project's level of disturbance and the ability to revert the land to a different use at the end of the proposed Project's useful life.

In addition, the implementation of the solar project could enhance soils with appropriate vegetative cover which could benefit biodiversity and soil health through increased soil carbon, water retention and infiltration, and reduced surface water. As discussed in Section 4.1, *Aesthetics,* implementation of Mitigation Measure MM 4.1-42 would require that in areas temporarily disturbed during construction would be revegetated with native seed mix and/or native plants, and also requires that native vegetation shall remain undisturbed unless removal is necessary for the placement and/or construction of facilities. This would ensure an appropriate vegetative cover that could benefit soil health, which would allow the property to remain in productive agricultural use provided the land would be reverted back for agricultural use after decommissioning.

While the proposed Project would indirectly support groundwater sustainability, and portions of the proposed Project could remain productive for agricultural use during proposed Project operation, converting 10,582 acres of Important Farmland and 5,784 acres of Prime Farmland to a

nonagricultural use for at least 35 years would constitute a significant impact to agricultural resources.

CEQA requires feasible and reasonable mitigation for significant impacts. CEQA Section 15364 defines feasible to mean "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." Agricultural conservation easements are legally recorded deed restrictions that are placed on a specific property used for agricultural production. Kern County's General Plan and Zoning Codes does not require agricultural conservation easements as a condition of development that converts agricultural land.

Because the proposed Project would convert 10,582 acres of farmland, this would require the applicant to mitigate for the conversion of agricultural lands. The option to secure agricultural conservation easements would potentially conflict with KCGP policies regarding groundwater management. As described in Section 1.10.6 of the County's General Plan, it is the County's policy to encourage development of the County's groundwater supplies to sustain and ensure water supplies for existing users, planned growth, and maintenance of the natural environment, and to encourage effective groundwater resources management for the long-term benefit of the County through responsible water management planning.

Whether or not the proposed Project is approved, significant fallowing will be necessary within both SWSD and SWID to meet groundwater sustainability goals in the basin. Fallowing land within the Project site would allow continuance of agricultural operations elsewhere by freeing up water for use on other agricultural lands. Requiring agricultural conservation easements as mitigation is inconsistent with groundwater management, as it would add to water-intensive agriculture uses, where goals of the Subbasin is to fallow agricultural lands (see further discussion in Section 4.17, *Utilities and Service Systems*). Anticipated reductions in the availability of irrigation water are also likely to limit the availability of productive agricultural lands with a reliable source of water, for which an agricultural conservation easement would be appropriate.

Because of SWSD GSA allocation deficit and potential fallowing of agricultural lands for groundwater sustainability, the use of agricultural conservation easements to mitigate Project impacts is directly inconsistent with groundwater management goals, and would hinder groundwater sustainability of the Subbasin.

Mitigation Measures

Implement Mitigation Measure MM 4.9-1 (Section 4.9, *Hazards and Hazardous Materials*), Mitigation Measure MM 4.10-1 (Section 4.10, *Hydrology and Water Quality),* and the following:

MM 4.2-1: The Project proponent/operator shall continuously comply with the following:

a. The construction contractor or project personnel shall use herbicides that are approved for use in California, and are appropriate for application adjacent to natural vegetation areas and agricultural use.

b. Personnel applying herbicides shall have all appropriate State and local herbicide applicator licenses and comply with all State and local regulations regarding herbicide use.

c. Herbicides shall be mixed and applied in conformance with the manufacturer's directions.

d. 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.

e. To minimize harm to wildlife, vegetation, and water bodies, herbicides shall not be applied directly to wildlife.

f. Products identified as non-toxic to birds and small mammals shall be used if nests or dens are observed.

g. 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.

h. A written record of all herbicide applications on the site, including dates and amounts, shall be maintained and provided to the Kern County Planning and Natural Resources Department, if requested.

Level of Significance after Mitigation

Significant and unavoidable.

Impact 4.2-2: Would the Project conflict with existing agricultural zoning or Williamson Act Contracts?

Agricultural Zoning

The Kern County Zoning Ordinance (KCZO) classifies the Project sites as being within the A (Exclusive Agriculture) District. Within the County jurisdiction, this district designates areas suitable for agricultural uses and serves to prevent the encroachment of incompatible uses onto agricultural lands. Per the KCZO, agricultural uses include the growing and harvesting of crops and the breeding and raising of animals. This district also allows agricultural industries, such as animal products processing, including meat packing and shipping when the livestock is produced or raised on the land. Some resource extraction and energy development are allowed uses, such as mineral exploration and oil or gas exploration given that these are geological resources that are not artificially created and access must be provided to them where they occur in the environment. Per Zoning Ordinance Section 19.12.030 G, because the PV solar project is not a use allowed "by-right", the PV solar facility and associated infrastructure can only be permitted with the processing of a CUP. This process would ensure that the conditions of approval will mitigate adverse effects to surrounding agricultural uses. Therefore, upon approval of the CUP application, the proposed

Project would be consistent and would not conflict with the existing zoning of the proposed Project site, and the impact of conversion of agricultural land would be minimized. To further reduce impacts, the Project would be required to implement Mitigation Measure MM 4.2-1 to limit the use of herbicides and minimizing impacts to onsite and to surrounding resources.

Williamson Act Contracts

A commercial solar facility is not listed as a compatible use in the Williamson Act Standard Uniform Rules, as adopted by the Kern County Board of Supervisors; therefore, the proposed Project would not be consistent with the existing contracts. Of the 11,983 total project acres, a total of approximately 10,689 acres are subject to active Williamson Act Land Use Contracts, all of which are subject to petitions filed for the non-renewal of each contract.

As discussed in more detail under 4.2.3, Regulatory Setting, above, the principal purpose of the Williamson Act is to preserve agricultural lands from conversion to nonagricultural or incompatible uses. Because the proposed Project is inconsistent with Williamson Act Contracts, the Project proponent has petitioned for cancellation of the Williamson Act Contracts, pursuant to California Government Code Section 51282(a)(1) that pertains to cancellation of a Williamson Act in the public interest. Cancellation of a Williamson Act Contract is an option under the limited circumstances and conditions set forth in Government Code Section 51280 et seq. In such cases, landowners may petition the Kern County Board of Supervisors for cancellation of a Williamson Act Contract. The Kern County Board of Supervisors may grant a tentative cancellation only if it makes the required statutory findings (Government Code Section 51282(a)).

Government Code Sections 51280 through 51283 set forth procedures for cancelling a Williamson Act contract. The property owner must pay a cancellation fee and the lead agency must make findings justifying the cancellation. As described below, the public benefit of the proposed Project to supply energy, provide energy security, reduce the water supply demand associated with irrigated agricultural lands, would substantially outweigh the objectives of the Williamson Act, and the finding set forth in Government Code Section 51282(c)(1) would be applicable. In addition, there is no proximate non-contracted land which is both available and suitable for the proposed Project. As such, Project proponent would be obligated to pay the Williamson Act contract cancellation fee as determined by the Kern County Assessor's Office, which would be required as a Condition of Approval of the proposed CUPs by the lead agency. With the payment of the cancellation fee, the contract cancellation process would be completed. Although the County decision-makers can approve the cancellation of the Williamson Act Contracts based on the process above, the removal of 10,689 acres subject to the Williamson Act would be considered a significant impact, as these lands would be taken out of lands eligible for enrollment in this historical land conservation act.

Mitigation Measures

Implement Mitigation Measure MM 4.2-1, as described above, MM 4.9-1 (Section 4.9, *Hazards and Hazardous Materials*), Mitigation Measure MM 4.10-1 (Section 4.10, *Hydrology and Water Quality)*.

Level of Significance after Mitigation

Significant and unavoidable.

Impact 4.2-3: Would the Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)) or timberland (as defined in Public Resources Code Section 4526) or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?

While the proposed Project site is currently zoned for agricultural use which allows for the growing and harvesting of timber, there are currently no forest uses on, or within proximity to, the proposed Project site, including the Midway Substation. Because the proposed Project does not involve a rezoning, there would be no rezoning or conflict with lands used for forest or timber production. The proposed Project would not conflict with zoning for, or cause rezoning of, forest land, timberland, or timberland zoned for timberland production. Therefore, no impacts would occur.

Mitigation Measures

No mitigation measures would be required.

Level of Significance after Mitigation

Not applicable—no impact would occur.

Impact 4.2-4: Would the Project result in the loss of forest land or conversion of forest land to non-forest use?

There are no forest uses on, or within proximity to, the Project site which the proposed Project could convert or could otherwise be lost as a result of the proposed Project. Therefore, no impacts would occur.

Mitigation Measures

No mitigation measures would be required.

Level of Significance after Mitigation

Not applicable—no impact would occur.

Impact 4.2-5: Would the Project involve other changes in the existing environment, which, because of their location or nature, could result in conversion of farmland to nonagricultural use or conversion of forest land to non-forest use?

The proposed Project would not induce the conversion of other nearby agricultural lands to nonagricultural uses. Some of the Project sites are currently in agricultural production and have

been used continuously for agricultural production and are subject to the Williamson Act. Land changing from agricultural use to a use that includes solar power and energy storage is not anticipated to affect nearby growers' ability to farm, as it would not restrict access to farmland, and would not require additional restrictions and limitations on pesticides, fungicides, and herbicides used on the crops as the proposed Project does not include the addition of any sensitive receptors.

Furthermore, the removal of these properties from agricultural use would not substantially affect the agricultural character of the area, and the conversion to non-agricultural uses that could potentially be caused by the proposed Project would be limited to the Project site. The proposed Project would not introduce a nonagricultural use that is sensitive to, or incompatible with, the surrounding agricultural operations that would occur nearby. Additionally, the proposed Project would not increase traffic to the area during operations of the proposed Project or otherwise induce growth in the vicinity of the Project site. If the County approves the requested CUPs for the proposed Project, the proposed photovoltaic facility and battery energy storage system would be compatible uses on agricultural zoned properties. In addition, the proposed Project would not place additional restrictions on noise, burning, and dust control because the proposed Project would not introduce sensitive receptors. Furthermore, the proposed Project would make no other changes to the existing environment that would affect the defining characteristics of off-site farmland to include land use, soil quality, or water availability. The proposed Project does not involve the installation of features (for example, buildings or windows) which would generate significant shadow effects on adjacent agricultural lands. Besides potential temporary impacts associated with construction activities, the proposed Project does not have operational features that could create significant impacts to adjacent lands.

The proposed Project would not include activities that would restrict or impair agricultural production on adjacent land.

Mitigation Measures

No mitigation measures would be required.

Level of Significance after Mitigation

Not applicable—no impact would occur.

Impact 4.2-6: Would the Project result in the cancellation of an Open Space Contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Act Contract for any parcel of 100 or more acres (Section 15206(b)(3)) Public Resources Code?

Approximately 235 acres of the total Project site is subject to a FSZ contract pursuant to Public Resources Code Section 15206(b)(3). The 235 acres subject to a Farmland Security Zone contract comprises three separate parcels, one of which is located on a parcel of 100 or more acres (Assessor's Parcel Number 100-100-03 [approximately 159 acres]). Cancellation of the FSZ contract on Assessor's Parcel Number 100-100-03 would be required. Like Williamson Act

Contracts, FSZ contracts may also be cancelled upon finding that cancellation would serve the purposes of the Williamson Act and be in the public interest (Government Code Section 51297).

As discussed previously, the Kern County Board of Supervisors is responsible for determining that the proposed Project would meet the required findings for Williamson Act contract and, where applicable, FSZ contract cancellations. Cancellation of the contracts is required for the construction and siting of the proposed Project in its proposed location. Once a determination is made, and if the County decision-makers find consistency with Government Code Sections 51280 through 51283 and where applicable, Government Code Section 51296 et seq, the Project proponent would be obligated to pay the contract cancellation fee as determined by the Kern County Assessor's Office, which would be required as a condition of approval of the requested CUPs, per Mitigation Measure MM 4.2-2. With the payment of the cancellation fee, the contract cancellation process would be completed. Although the County decision-makers can approve the cancellation of contracts and the Project proponent would pay cancellation fees, the proposed Project would result in the cancellation of Williamson Act and FSZ contracts greater than 100 acres. . The resulting impacts associated with cancellation of the contracts would be significant and unavoidable.

Mitigation Measures

MM 4.2-2: Prior to issuance of any grading or building permit or any use of the property for storage of materials or panels, payment for cancellation of all Williamson Act and/or Farmland Security Zone contracts shall be completed for the proposed Project development area or the period for nonrenewal shall have been completed and the identified parcels determined to no longer be under contract.

Level of Significance after Mitigation

Significant and unavoidable.

4.2.5 Cumulative Setting Impacts and Mitigation Measures

Cumulative Setting

The geographic scope for assessing cumulative impacts on agricultural and forest resources is Kern County as a whole, due to the County's contribution to agricultural production in the state. As discussed previously, Kern County ranks third in agricultural production and is second on the list of California counties for having the largest Urban Land increase. A cumulative conversion of Prime, Unique, or Important Farmland resulting from the proposed Project, when combined with other projects in Kern County, are described in Section 3.13, *Cumulative Projects*, of this Draft EIR, The proposed Project itself would occupy a relatively minor portion (1.2 percent) of the total 847,383 acres of harvested agricultural land in Kern County (Appendix B).

The proposed Project is a compatible, low intensity use that does not limit agricultural activities such as pesticide spraying and crop dusting or create impacts such as shadowing, dust, or debris that would compromise agricultural activities. Other projects on properties that are subject to Williamson Act Contracts in non-renewal status, would not be developed until the existing

Williamson Act Contracts expire and, similarly, would not result in any conflicts related to cancellation of an open space contract or a FSZ contract. Implementation of the proposed Project and the loss of agricultural land, when combined with the potential loss of other agricultural lands of the County over time, would contribute to cumulative impacts.

Mitigation Measures

Implement Mitigation Measure MM 4.2-1 through MM 4.2-2, as described above, Mitigation Measure MM 4.9-1 (Section 4.9, *Hazards and Hazardous Materials*), and Mitigation Measure MM 4.10-1 (Section 4.10, *Hydrology and Water Quality)*.

Level of Significance after Mitigation

Cumulative impacts would be significant and unavoidable.

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Section 4.3

Air Quality

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Section 4.3
Air Quality

4.3.1 Introduction

This Draft Environmental Impact Report (EIR) section describes the affected environment and regulatory setting for air quality. It also describes the impacts to air quality that would result from implementation of the proposed Buttonbush Solar and Storage Project (proposed Project).

The proposed Project consists of seven sites that constitute the entire Project site, each of which would contain a photovoltaic (PV) solar facility and associated infrastructure that would enable a total combined generation of up to 2 gigawatts (GW) of renewable electrical energy with a combined 2 GW battery energy storage system capable of storing approximately 16,000 megawatt-hours (MWh) or 16 gigawatt-hours (GWh) of energy. The proposed Project would be located across 11,983 acres and across 128 parcels of privately owned land currently utilized for agricultural and open space uses in the valley region of Kern County.

Information contained within this section was primarily provided by the *Final Air Quality, Greenhouse Gas Emissions, and Energy Technical Report*, dated August 2025, which was prepared by Dudek and included as Appendix C.2 of this Draft EIR. The report was prepared in accordance with the 2006 Kern County Planning Department's Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports and the 2015 San Joaquin Valley Air Pollution Control District (SJVAPCD) (SJVAPCD 2015a) Guidance for Assessing and Mitigating Air Quality Impacts. Other informational resources that were considered and/or on which the analysis relied as applicable are included in Appendix C.3 of this Draft EIR and consist of the following:

- *The Carl Moyer Program Guidelines* (California Environmental Protection Agency Revised 2017)
- *Indirect Source Review Program 2024 Annual Report July 1, 2023 – June 30, 2024* (SJVAPCD 2024a)
- SJVAPCD and South Coast Air Quality Management District *Sierra Club v. County of Fresno* Amicus Curiae Briefs (2014)
- Sample SJVAPCD Air Quality Emission Reduction Agreement (SJVAPCD n.d.a)
- *Air Toxics 2024 Annual Report* (SJVAPCD 2025a)
- *2008 Annual Report on the District's Indirect Source Review Program Reporting Period: March 1, 2007 to February 29, 2008* (SJVAPCD 2008a)

A description of the environmental setting (affected environment) for air quality is presented below in Section 4.3.2, *Environmental Setting*. The regulatory setting applicable to air quality related impacts is presented in Section 4.3.3, *Regulatory Setting*, and Section 4.3.4, *Impacts and Mitigation Measures,* discusses project impacts and associated mitigation measures.

4.3.2 Environmental Setting

The proposed Project is in the larger San Joaquin Valley Air Basin (SJVAB), which encompasses 25,000 square miles and generally includes most of the San Joaquin Valley (SJV) floor or western portion of the county. The SJV floor is within the southern end of the SJVAB, which is made up of all or portions of eight counties in California's Central Valley. These counties include Fresno, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare counties, as well as the SJV portion of Kern County. The western portion of Kern County, where the proposed Project is located is regulated by the SJVAPCD.

Air pollution in the SJVAB can be attributed to both anthropogenic and nonanthropogenic activities that produce emissions. Air pollution from significant anthropogenic activities in the SJVAB includes a variety of industrial-based sources as well as on- and off-road mobile sources. Activities that tend to increase mobile activity include increases in population, increases in traffic (including automobiles, trucks, aircraft, and rail), urban sprawl (which increases commuter driving distances), and general local land management practices as they pertain to modes of commuter transportation (SJVAPCD 2015a). Air pollution is also transported into the SJVAB from a variety of sources (for example, sources located in Northern California and Asia) (Faloona et al. 2015).

Meteorological Conditions

The overall climate in the SJVAB is warm and semi-arid. The SJV is in a Mediterranean Climate Zone. Mediterranean Climate Zones occur on the West Coast of continents at 30 to 40 degrees latitude and are influenced by a subtropical high-pressure area most of the year. Mediterranean climates are characterized by sparse rainfall, which occurs mainly in the winter. There is only one wet season during the year and 90 percent of the precipitation falls during October through April. Snow in the SJV is infrequent and thunderstorms seldom occur. Summers are hot and dry. Summertime maximum temperatures often exceed 100 degrees Fahrenheit (°F) in the SJV.

The subtropical high-pressure area is strongest during spring, summer, and fall and produces subsiding air, which can result in temperature inversions in the valley. Air temperature in the lowest layer of the atmosphere typically decreases with altitude. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. The height of the base of the inversion is known as the "mixing height." This is the level to which pollutants can mix vertically. Mixing of air is minimized above the inversion base. The inversion base represents an abrupt density change where little air movement occurs. A temperature inversion can act like a lid, inhibiting vertical mixing of the air mass near the land surface, resulting in trapping of air pollutants below the inversion. Most of the surrounding mountains are above the normal height of summer inversions (1,500 to 3,000 feet). Concentration levels of air pollutants are directly related to inversion layers due to the limitation of vertical mixing. Inversion layers enhance the formation of ozone (O_3) and limit dispersion of directly emitted pollutants like particulate matter (PM) and carbon monoxide (CO) (SJVAPCD 2015a).

Winter-time high-pressure events can often last many weeks with surface temperature often lowering into the 30°F range. During these events, fog can be present, and inversions are extremely strong. These winter-time inversions can inhibit vertical mixing of pollutants to a few hundred feet (SJVAPCD 2015a).

The transport and dispersion of air pollutants in ambient air are influenced by many complex factors. The primary factors are wind, topological boundaries, and atmospheric stability. During the summer, wind speed and direction data indicate that summer wind usually originates at the north end of the SJV and flows in a south-southeasterly direction through the valley and the Tehachapi Pass, into the Mojave Desert. During the winter months, the SJV experiences light, variable winds, less than 10 miles per hour.

Topography

Air pollution is directly related to a region's topographic features. The SJVAB is approximately 250 miles long, an average of 35 miles wide, and is the second largest air basin in the state. The SJVAB is defined by the Sierra Nevada in the east (8,000 to 14,000 feet in elevation), the Coast Ranges in the west (averaging 3,000 feet in elevation), and the Tehachapi Mountains in the south (6,000 to 8,000 feet in elevation). The SJV is basically flat with a slight downward gradient to the northwest and opens to the sea at the Carquinez Strait where the San Joaquin-Sacramento Delta empties into San Francisco Bay.

Wind Patterns

The SJVAB's topography has a dominating effect on wind patterns. Winds tend to blow somewhat parallel to the SJV and mountain range orientation. In spring and early summer, thermal low-pressure systems develop over the interior basins east of the Sierra Nevada, and the Pacific High (high-pressure system that develops over the central Pacific Ocean near the Hawaiian Islands) moves northward. These developments and the topography produce the high incidence of relatively strong northwesterly winds in the spring and early summer (SJVAPCD 2015a).

Wind speed and direction data indicate that during the summer, winds usually originate at the north end of the SJVAB and flow in a south-southeasterly direction through the Tehachapi Pass into the Southeast Desert Air Basin. Wind speed and direction data indicate that during the winter, winds occasionally originate from the south end of the SJVAB and flow in a north-northwesterly direction. Also, during winter, the SJVAB experiences light, variable winds, typically less than 10 mph. Low wind speeds, combined with low inversion layers in the winter, create a climate conducive to high CO and inhalable particulates concentrations (SJVAPCD 2015b).

For the southernmost portion of the SJVAB, steady winds are typical in the mountainous area that characterizes this portion and quickly disperse air pollutants.

Temperature

The vertical rise and mixing of air pollutants is limited by the presence of persistent temperature inversions. Inversions may be either ground level or elevated. Ground-level inversions occur frequently during early fall and winter (that is, October through January). High concentrations of primary pollutants, which are those emitted directly into the atmosphere (for example, CO), may be found at these times. Elevated inversions act as a lid over the basin and limit vertical mixing, resulting in severe air stagnation. Elevated inversions contribute to the occurrence of high levels of O_3 during the summer months.

In winter, storm systems moving in from the Pacific Ocean bring a maritime influence to the SJV. The Sierra Nevada prevents the cold, continental air masses from influencing the valley. Temperatures below freezing are unusual. Historical data from the Buttonwillow monitoring station indicate average lows in the 30s during winter and average lows in the 60s in the summer. Average highs in the winter in the 50s, and average highs in the summer are in the 90s (WRCC 2023a).

Precipitation

Precipitation in the SJVAB is strongly influenced by the position of the semi-permanent subtropical high-pressure area located off the Pacific coast (the Pacific High). In the winter, this high-pressure system moves southward, allowing Pacific storms to move through the SJVAB. The majority of the precipitation in the SJV is winter rain produced by these storms. Snowstorms, hailstorms, and ice storms occur infrequently in the SJV, and severe occurrences are very rare.

Precipitation in the SJVAB is typically less than 8 inches per year. The SJV is an area of variable relative humidity. During the warm season, humidities are characteristically low and occasionally, under the influence of the "norther," readings may drop to below 10 percent. In the delta area, at the confluence of the Sacramento and San Joaquin Rivers, a strong inflow of marine air during the summer creates a transition zone between the high humidities of the coast and the low readings of the interior. Winter values are usually moderate to high. A shallow layer of ground fog, known locally as "tule fog," frequently forms at night and can persist for as long as two or three weeks (WRCC 2023b).

Existing Air Quality

The U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have established health-based ambient air quality standards for several different pollutants. The EPA sets National Ambient Air Quality Standards (NAAQS) for the following seven pollutants for ozone, CO, nitrogen dioxide (NO_2), respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). These seven pollutants are commonly referred to as "criteria pollutants." Primary standards provide public health protection, including protecting the health of "sensitive" populations, such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

In addition, CARB has established California Ambient Air Quality Standards (CAAQS) standards for these pollutants, as well as for sulfate (SO_4^{2-}), visibility reducing particles, hydrogen sulfide (H_2S), and vinyl chloride. California standards are generally stricter than national standards. The NAAQS and the CAAQS are shown in **Table 4.3-1:** *National and California Ambient Air Quality Standards.*

In 2014, the SJVAPCD formally requested that the EPA determine that the SJV has attained the federal 1-hour ozone standard based on the fact that the SJV has been meeting the 1-hour ozone standard based on the "expected exceedance days" test over the 2011 to 2013 three-year period air monitoring data. EPA approved the request in 2016, and the regional is officially designated as attainment.

Since 1992, the SJVAPCD air quality management strategies have focused on the 1-hour ozone standard, trying to achieve the emissions reductions needed to demonstrate attainment by developing and implementing attainment plans, adopting over 500 stringent rules related to emissions reductions, and supplementing its regulatory programs with a voluntary incentive program.

Ambient Air Quality

The SJVAPCD, CARB, National Park Service, and Santa Rosa Rancheria in Lemoore operate an extensive network of air monitoring stations in the SJV. The monitoring station network provides air quality monitoring data, including real-time meteorological data and ambient pollutant levels, as well as historical data. The network in the SJVAB consists of 37 monitoring stations, 11 of which are located in western Kern County within the Project site (SJVAPCD 2025b). **Table 4.3-2:** *Attainment Status for the San Joaquin Valley Air Pollution Control District*, presents the measured ambient pollutant concentrations and the exceedances of state and federal standards that have occurred at the above-mentioned monitoring stations from 2019 through 2021.

Criteria Air Pollutants and Health Effects

The following is a general description of the criteria air pollutants that are hazardous to human health and are regulated by federal and state ambient air quality standards or criteria for outdoor concentrations.

Ozone (O_3)

In the presence of ultraviolet radiation, nitrogen oxides (NO_X) and volatile organic compounds (VOCs)/reactive organic gases (ROG) go through a number of complex chemical reactions to form ozone. **Table 4.3-3:** *Ambient Air Quality in Kern County—California and National Standards*, includes the maximum hourly concentration and the number of days above the federal and state standards. As shown in **Table 4.3-3:** *Ambient Air Quality in Kern County—California and National Standards*, ozone continues to be above the state 1-hour and both the federal and state 8-hour ozone standards in many places in Kern County. The SJVAPCD attainment status for ozone is currently severe nonattainment for state 1-hour ozone; nonattainment/extreme for the federal 8-hour ozone; and nonattainment for state 8-hour ozone.

Table 4.3-1: National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards (b, e)	National Standards (a, e)	
			Primary(c)	Secondary(d)
Ozone (O_3)	1-hour	0.09 ppm (180 µg/m^3)	— (f)	—
	8-hour	0.070 ppm (137 µg/m^3)	0.070 ppm (147 µg/m^3)	Same as Primary Standard
Carbon monoxide (CO)	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	—
	8-hour	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	—
Nitrogen dioxide (NO_2)	1-hour	0.18 ppm (339 µg/m^3)	100 ppb (188 µg/m^3)	—
	Annual mean	0.030 ppm (57 µg/m^3)	0.053 ppm (100 µg/m^3)	Same as Primary Standard
Sulfur dioxide (SO_2)(g)	1-hour	0.25 ppm (655 µg/m^3)	75 ppb (196 µg/m^3)	—
	3-hour	—	—	0.5 ppm (1,300 µg/m^3)
	24-hour	0.04 ppm (105 µg/m^3)	—	—
Respirable Particulate Matter (PM_{10})(h)	24-hour	50 µg/m^3	150 µg/m^3	Same as Primary Standard
	Annual mean	20 µg/m^3	—	—
Fine Particulate Matter ($PM_{2.5}$)(h)	24-hour	—	35 µg/m^3	Same as Primary Standard
	Annual mean	12 µg/m^3	9.0 µg/m^3	15 µg/m^3
Lead (Pb)	30-day average	1.5 µg/m^3	—	—
	Rolling 3-month average	—	0.15 µg/m^3	Same as Primary Standard

Table 4.3-1: National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards (b, e)	National Standards (a, e)	
			Primary(c)	Secondary(d)
Hydrogen sulfide (H_2S)	1-hour	0.03 ppm (42 µg/m^3)	No Federal Standards	
Sulfate (SO_4^{2-})	24-hour	25 µg/m^3		
Visibility reducing particles	8-hour	See Note (i)		
Vinyl chloride(j)	24-hour	0.01 ppm (26 µg/m^3)		

Sources: CARB 2024; EPA 2025

Notes:

(a) National Ambient Air Quality Standards (other than ozone, PM, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth-highest 8-hour concentration in a year, averaged over three years, is equal to, or less than, the standard. For particulate matter less than 10 microns (PM_{10}), the 24-hour standard is not to be exceeded more than once per year on average over three years. The 24-hour standard is attained when the three-year average of the weighted annual mean at each monitor within an area does not exceed 150 µg/m^3. For particulate matter less than 2.5 microns ($PM_{2.5}$), the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, do not exceed 35 µg/m^3. The annual standard is attained when the three-year average of the weighted annual mean at single or multiple community-oriented monitors does not exceed 12 µg/m^3.

(b) California Ambient Air Quality Standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (SO_2; 1- and 24-hour), nitrogen dioxide (NO_2), PM_{10} and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded.

(c) National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

(d) National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse impacts of a pollutant.

(e) Concentration expressed first in units in which it was promulgated. Parts per million (ppm) in this table refers to ppm by volume or micromoles of pollutant per mole of gas.

(f) The federal 1-hour ozone standard was revoked for most areas of the United States, including all of California on June 15, 2005.

(g) Final rule signed June 2, 2010. The 1971 annual and 24-hour SO_2 standards were revoked in that same rulemaking.

(h) On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12 µg/m^3. Existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over three years.

(i) In 1989, the California Air Resources Board converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

(j) The California Air Resources Board has identified lead and vinyl chloride as "toxic air contaminants" with no threshold level of exposure for adverse health impacts determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Key: µg/m^3 = micrograms per cubic meter; ppb = parts per billion; ppm = parts per million; mg/m^3 = milligrams per cubic meter

Table 4.3-2: *Attainment Status for the San Joaquin Valley Air Pollution Control District*, summarizes the federal and state attainment status for the SJVAB, as of 2025, based on the NAAQS and CAAQS, respectively.

Table 4.3-2: Attainment Status for the San Joaquin Valley Air Pollution Control District

Pollutant	Designation/Classification	
	Federal	State
Ozone–One hour	No Federal Standard[a]	Nonattainment/Severe
Ozone–Eight hour	Nonattainment/Extreme[b]	Nonattainment
PM_{10}	Attainment[c]	Nonattainment
$PM_{2.5}$	Nonattainment[d]	Nonattainment
Carbon monoxide (CO)	Unclassifiable/Attainment	Attainment
Nitrogen dioxide (NO_2)	Unclassifiable/Attainment	Attainment
Sulfur dioxide (SO_2)	Attainment/Unclassified	Attainment
Lead (Pb)[e]	Unclassifiable/Attainment	Attainment
Hydrogen sulfide (H_2S)	No Federal Standard	Unclassified
Sulfates (SO_4^{2-})	No Federal Standard	Attainment
Vinyl chloride[e]	No Federal Standard	No Designation
Visibility reducing particulate	No Federal Standard	Unclassified

Source: SJVAPCD 2025c

Notes:

[a] Effective June 15, 2005, the EPA revoked the national 1-hour ozone standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme nonattainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan (SJVAPCD 2004) on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.

[b] Though the San Joaquin Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved San Joaquin Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).

[c] On September 25, 2008, the EPA redesignated the SJV to attainment for the PM_{10} standard and approved the PM_{10} Maintenance Plan.

[d] The San Joaquin Valley is designated nonattainment for the 1997 $PM_{2.5}$ NAAQS. EPA designated the San Joaquin Valley as nonattainment for the 2006 $PM_{2.5}$ NAAQS on November 13, 2009 (effective December 14, 2009).

[e] CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure for adverse health effects determined.

Key: $PM_{2.5}$ = particulate matter less than 2.5 microns; PM_{10} = particulate matter less than 10 microns

While ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems, such as forests and foothill communities; agricultural crops; and some man-made materials, such as rubber, paint, and plastic. High levels of ozone may negatively affect immune systems, making people more susceptible to respiratory illnesses, including bronchitis and pneumonia. Ozone also accelerates aging and exacerbates preexisting asthma and bronchitis and, in cases with high concentrations, can lead to the development of asthma in active children. Active people, both children and adults, appear to be more at risk from ozone exposure than those with a low level of activity. Additionally, the elderly and those with respiratory disease are also considered sensitive populations for ozone.

Table 4.3-3: *Ambient Air Quality in Kern County—California and National Standards*, presents the measured ambient pollutant concentrations and the exceedances of state and federal standards that have occurred at the above-mentioned monitoring stations from 2019 through 2021.

Table 4.3-3: Ambient Air Quality in Kern County—California and National Standards

Air Monitoring Station	Averaging Time	Agency/Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year[a]		
				2019	2020	2021	2019	2020	2021
Ozone (O_3) (ppm)									
Shafter-Walker Street[b]	Maximum 1-hour	California	0.09	0.087	0.116	0.104	0	6	1
	Maximum 8-hour	California	0.070	0.077	0.098	0.085	14	34	15
		National	0.070	0.077	0.098	0.085	14	34	15
Nitrogen Dioxide (NO_2) (ppm)									
Shafter-Walker Street[b]	Maximum 1-hour	California	0.18	0.049	0.041	0.047	0	0	0
		National	0.10	0.049	0.041	0.048	0	0	0
	Annual	California	0.030	0.008	0.008	0.008	0	0	0
		National	0.053	0.009	0.009	0.008	0	0	0
Carbon Monoxide (CO) (ppm)									
Bakersfield- 2000 South Union Avenue[c]	Maximum 1-hour	California	20	1.2	1.7	2.8	0	0	0
		National	35	1.2	1.7	2.8	0	0	0
	Maximum 8-hour	California	9.0	1.0	1.6	1.3	0	0	0
		National	9	1.0	1.6	1.3	0	0	0
Coarse Particulate Matter (PM_{10}) (ug/m^3)[e]									
Bakersfield- 5558 California Avenue[d]	Maximum 24-hour	California	50	125.9	196.8	439.3	108.1 (17)	ND (18)	ND (124)
		National	150	116.3	193.8	437.5	0.0 (0)	ND (1)	ND (3)
	Annual	California	20	39.0	ND	ND	ND	ND	ND

Table 4.3-3: Ambient Air Quality in Kern County—California and National Standards

Air Monitoring Station	Averaging Time	Agency/Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year[a]		
				2019	2020	2021	2019	2020	2021
Fine Particulate Matter ($PM_{2.5}$) ($\mu g/m^3$)[e]									
Bakersfield-5558 California Avenue[d]	Maximum 24-hour	National	35	59.1	150.7	72.3	12.3 (12)	46.4 (44)	43.2 (40)
	Annual	California	12	11.8	19.7	16.6	ND	ND	ND
		National	12.0	11.5	19.7	16.6	ND	ND	ND

Source: Dudek 2025

Notes:

Data taken from CARB iADAM (http://www.arb.ca.gov/adam) and EPA AirData (https://www.epa.gov/outdoor-air-quality-data) represent the highest concentrations experienced over a given year.

SO_2 is not currently monitored in the county and data is not available; therefore, it is not included in the table.

[a] Exceedances of national and California standards are only shown for O_3 and PM. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed national or California standards during the years shown. There is no national standard for 1-hour O_3, annual PM_{10}, or 24-hour SO_2, nor is there a California 24-hour standard for $PM_{2.5}$.

[b] Shafter-Walker Monitoring Station is located at 548 Walker Street, Shafter, California 93263.

[c] Bakersfield Monitoring Station is located at 2000 South Union Avenue, Bakersfield, California 93307.

[d] Bakersfield Monitoring Station is located at 5558 California Avenue, Bakersfield, California 93309.

[e] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

Key: $\mu g/m^3$ = micrograms per cubic meter; CAAQS = California Ambient Air Quality Standards; CARB = California Air Resources Board; NAAQS = National Ambient Air Quality Standards; ND = insufficient data available to determine the value; NO_2 = nitrogen dioxide; $PM_{2.5}$ = particulate matter less than 2.5 microns; PM_{10} = particulate matter less than 10 microns; ppb = parts per billion; ppm = parts per million

People who work or play outdoors are at a greater risk for harmful health effects from ozone. Children and adolescents are also at greater risk because they are more likely than adults to spend time engaged in vigorous activities. Research indicates that children under 12 years of age spend nearly twice as much time outdoors daily than adults. Teenagers spend at least twice as much time as adults in active sports and outdoor activities. Also, children inhale more air per pound of body weight than adults, and they breathe more rapidly than adults. Children are less likely than adults to notice their own symptoms and avoid harmful exposures.

Ozone is an oxidant that is comparable to household bleach, which can kill living cells (such as germs or human skin cells) on contact. Ozone can damage the respiratory tract, causing inflammation and irritation, and it can induce symptoms such as coughing, chest tightness, shortness of breath, and worsening of asthmatic symptoms. Ozone in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. Exposure to levels of ozone above the current ambient air quality standard can lead to lung inflammation and lung tissue damage and a reduction in the amount of air inhaled into the lungs. Evidence has linked the onset of asthma to exposure to elevated ozone levels in exercising children. Elevated ozone concentrations also reduce crop and timber yields, damage native plants, and damage materials such as rubber, paints, fabric, and plastics (American Lung Association 2015).

Carbon Monoxide (CO)

Carbon Monoxide (CO) is a colorless, odorless gas produced by incomplete combustion of carbon-containing fuels (for example, gasoline, diesel fuel, and biomass). CO is primarily a byproduct of motor vehicle exhaust, which contributes more than two-thirds of all CO emissions nationwide. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. These emissions can result in high concentrations of CO, particularly in local areas with heavy traffic congestion. Other sources of CO emissions include industrial processes and fuel combustion in sources such as boilers and incinerators. Despite an overall downward trend in concentrations and emissions of CO, some metropolitan areas still experience high levels of CO.

CO is essentially inert to plants and materials but can have significant effects on human health. CO enters the bloodstream and binds more readily to hemoglobin than oxygen, reducing the oxygen-carrying capacity of blood, thus reducing oxygen delivery to organs and tissues. The health threat from CO is most serious for those who suffer from cardiovascular disease. Healthy individuals are also affected, but only at higher levels of exposure. CO in the bloodstream reduces the blood's capacity for carrying oxygen to the heart, brain, and other parts of the body. Exposure to CO can cause chest pain in heart patients, headaches, and reduced mental alertness. At high concentrations, CO can cause heart difficulties in people with chronic diseases and can impair mental abilities. Exposure to elevated CO levels is associated with visual impairment, reduced work capacity, reduced manual dexterity, poor learning ability, difficulty performing complex tasks, and in prolonged, enclosed exposure, death.

The adverse health effects associated with exposure to ambient and indoor concentrations of CO are related to concentration of carboxyhemoglobin in the blood. Health effects observed may include early onset of cardiovascular disease, behavioral impairment, decreased exercise

performance of young healthy people, reduced birth weight, Sudden Infant Death Syndrome, and increased daily mortality rate. Most of the studies evaluating adverse health effects of CO on the central nervous system examine high-level poisoning. Such poisoning results in symptoms ranging from common flu and cold symptoms (shortness of breath on mild exertion, mild headaches, and nausea) to unconsciousness and death.

No CO data are available for Kern County for 2019 through 2021. The SJVAPCD attainment status for CO is unclassified/attainment for federal standards and unclassified for state standards.

Nitrogen Dioxide (NO_2) and Other Oxides of Nitrogen (NO_X)

Nitrogen Dioxide (NO_2) is a reddish brown, highly reactive gas that is formed in the ambient air through the oxidation of nitric oxide. Other Oxides of Nitrogen (NO_X), the generic term for a group of highly reactive gases that contain nitrogen and oxygen in varying amounts, plays a major role in the formation of ozone, PM, and acid rain. NO_X emissions result from high-temperature combustion processes such as vehicle exhaust emissions and power plants. Home heaters and gas stoves can also produce substantial amounts of NO_2 in indoor settings. The majority of the NO_X emitted from combustion sources is in the form of nitrogen oxide (NO), while the balance is mainly NO_2. NO is oxidized by ozone in the atmosphere to NO_2 but some level of photochemical activity is needed for this conversion.

NO_X reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as NO_2, which cause respiratory problems. NO_X and the pollutants formed from NO_X can be transported over long distances, following the patterns of prevailing winds. Therefore, controlling NO_X is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

Current scientific evidence links short-term NO_2 exposures, ranging from 30 minutes to 24 hours, with adverse respiratory effects including airway inflammation in healthy people and increased respiratory symptoms in people with asthma. Also, studies show a connection between breathing elevated short-term NO_2 concentrations, and increased visits to emergency departments and hospital admissions for respiratory issues, especially asthma (EPA 2023a). NO_X are ozone precursors that combine with ROGs to form ozone. See the "Ozone (O_3)" section above for a discussion of the health effects of ozone.

Direct inhalation of NO_X can also cause a wide range of health effects. NO_X can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza. Short-term exposures (for example, less than 3 hours) to low levels of NO_2 (a subset of NO_X) may lead to changes in airway responsiveness and lung function in individuals with preexisting respiratory illnesses. These exposures may also increase respiratory illnesses in children. Long-term exposures to NO_2 may lead to increased susceptibility to respiratory infection and may cause irreversible alterations in lung structure. Other health effects associated with NO_X are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may lead to eye and mucus membrane aggravation, along with pulmonary dysfunction. NO_X can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to production of

particulate nitrates. Airborne NO_X can also impair visibility. NO_X is a major component of acid deposition in California. NO_X may affect both terrestrial and aquatic ecosystems. NO_X in the air is a potentially significant contributor to a number of environmental effects such as acid rain and eutrophication in coastal waters. Eutrophication occurs when a body of water suffers an increase in nutrients that reduce the amount of oxygen in the water, producing an environment that is destructive to fish and other animal life.

NO_2 is toxic to various animals as well as to humans. Its toxicity relates to its ability to combine with water to form nitric acid in the eye, lung, mucus membranes, and skin. Studies of the health impacts of NO_2 include experimental studies on animals, controlled laboratory studies on humans, and observational studies. In animals, long-term exposure to NO_2 increases susceptibility to respiratory infections, lowering their resistance to diseases such as pneumonia and influenza. Laboratory studies show susceptible humans, such as asthmatics, exposed to high concentrations of NO_2 can suffer lung irritation and, potentially, lung damage. Epidemiological studies have also shown associations between NO_2 concentrations and daily mortality from respiratory and cardiovascular causes, and with hospital admissions for respiratory conditions.

NO_X contribute to a wide range of environmental effects directly and when combined with other precursors in acid rain and ozone. Increased nitrogen inputs to terrestrial and wetland systems can lead to changes in plant species composition and diversity. Similarly, direct nitrogen inputs to aquatic ecosystems, such as those found in estuarine and coastal waters, can lead to eutrophication (a condition that promotes excessive algae growth, which can lead to a severe depletion of dissolved oxygen and increased levels of toxins harmful to aquatic life). Nitrogen, alone or in acid rain, also can acidify soils and surface waters. Acidification of soils causes the loss of essential plant nutrients and increased levels of soluble aluminum that are toxic to plants. Acidification of surface waters creates conditions of low pH and levels of aluminum that are toxic to fish and other aquatic organisms. NO_X also contribute to visibility impairment.

Table 4.3-3: *Ambient Air Quality in Kern County—California and National Standards*, summarizes NO_X data collected from Kern County monitoring stations. As indicated in the table, there have been no exceedances of the state standards, and no data are available to determine exceedances under federal standards. The SJVAPCD attainment status for NO_2 is attainment/unclassified for federal and attainment for state standards.

Particulate Matter (PM_{10} and $PM_{2.5}$)

PM pollution consists of very small aerosol and solid particles suspended in the air. PM is a mixture of materials that can include acids (such as nitrates and sulfates), organic chemicals, smoke, soot, dust, salt, acids, metals, and allergens (for example, fragments of pollen or mold spores). PM also forms when gases emitted from motor vehicles and industrial sources undergo chemical reactions in the atmosphere. The EPA currently regulates two types of PM emissions: PM_{10} and $PM_{2.5}$. PM_{10} refers to particles less than or equal to 10 microns in diameter and $PM_{2.5}$ refers to particles less than or equal to 2.5 microns in diameter.

Respirable Particulate Matter (PM_{10})

PM_{10} can be emitted directly, or it can be formed many miles downwind from emission sources when various precursor pollutants interact in the atmosphere. Gaseous emissions of pollutants like NO_X, sulfur oxides (SO_X), VOC, and ammonia, given the right meteorological conditions, can form PM in the form of nitrates (NO_3), SO_4^{2-}, and organic particles. These pollutants are known as secondary particulates because they are not directly emitted, but are formed through complex chemical reactions in the atmosphere. Fugitive dust is mostly PM_{10}.

Table 4.3-3: *Ambient Air Quality in Kern County—California and National Standards*, summarizes the ambient PM_{10} data collected from the Bakersfield 5558 California Avenue and Oildale 3311 Manor Street monitoring stations near the Project site and includes the maximum 24-hour and annual arithmetic average concentrations and the number of days above the federal and state standards. The SJVAPCD attainment status for the federal PM_{10} standards is attainment and the state PM_{10} standard is nonattainment/severe.

Fine Particulate Matter ($PM_{2.5}$)

Table 4.3-3: *Ambient Air Quality in Kern County—California and National Standards,* summarizes the ambient fine PM data collected from monitoring stations located near the Project site. The SJVAPCD is in nonattainment for the federal and state $PM_{2.5}$ standards.

The size of particles is directly linked to their potential for causing health problems. PM_{10} particles pose problems because they can get deep into lungs and the bloodstream. Being even smaller, $PM_{2.5}$ will travel farther into the lungs and can have more severe health impacts. Exposure to $PM_{2.5}$ particles can affect both lungs and heart. Numerous scientific studies have linked particle pollution exposure to a variety of problems, including:

- Premature death in people with heart or lung disease;
- Nonfatal heart attacks;
- Irregular heartbeat;
- Aggravated asthma;
- Decreased lung function; and
- Increased respiratory symptoms, such as irritation of the airways, coughing or difficulty breathing (EPA 2023b).

As a consequence of long-term exposure, $PM_{2.5}$ is a stronger risk factor for negative health effects than the coarse part of PM_{10} particles (particles in the 2.5 to 10 micron range). $PM_{2.5}$ constitutes a large portion of combustion particulates, including diesel particulate matter (DPM). The health risk from the inhalation of PM depends on the size, composition, and concentration of the particles. Larger particles are generally filtered in the nose and throat, while particulate matter smaller than PM_{10} can settle in the bronchi and lungs and cause health problems. $PM_{2.5}$ can penetrate into the gas-exchange regions of the lungs, and ultrafine particles ($PM_{0.1}$) may pass through the lungs to

affect other organs, such as the brain. Combustion PM emissions, including diesel exhaust, often consists of particles smaller than 0.1 microns.

Long-term exposure to fine particulates may contribute to pulmonary and systemic oxidative stress, inflammation, progression of atherosclerosis, and risk of ischemic heart disease and death. Short-term exposure may contribute to complications of atherosclerosis, thrombosis, and acute ischemic events and may lead to increased mortality and morbidity from cardiovascular and respiratory diseases.

PM_{10} and $PM_{2.5}$ have fundamentally distinct physical and chemical properties and health effects and thus are separately regulated and measured.

PM emissions may also lead to visibility impairment or aesthetic impacts. Visibility degradation is caused by the absorption and scattering of light by particles and gases in the atmosphere before it reaches the observer. As the number of fine particles increases, more light is absorbed and scattered, resulting in less clarity, color, and visual range. Particles that reduce visibility the most have diameters in the range of 0.1 to 1.0 microns. Some types of particles such as sulfates scatter more light, particularly during humid conditions. $PM_{2.5}$ can be transported to other locations and contribute to visibility problems. $PM_{2.5}$ can also affect vegetation by damaging foliage, disrupting the chemical processes within plants, reducing light adsorption, and disrupting photosynthesis (SJVAPCD 2018, 3–5).

Sulfur Dioxide (SO_2)

Sulfur Dioxide (SO_2) is typically emitted as a result of the combustion of fuel containing sulfur. SO_2 is a colorless, irritating gas with a “rotten egg” smell formed primarily by the combustion of sulfur-containing fossil fuels. Fuels, such as natural gas, contain very little sulfur and consequently have very low SO_2 emissions when combusted. By contrast, fuels high in sulfur content, such as coal or heavy fuel oils, can emit very large amounts of SO_2 when combusted. Sources of SO_2 emissions come from every economic sector and include a wide variety of fuels, and other gases, liquids, and solids.

Current scientific evidence links short-term exposures to SO_2, ranging from 5 minutes to 24 hours, with an array of adverse respiratory effects including bronchoconstriction and increased asthma symptoms. These effects are particularly important for asthmatics at elevated ventilation rates (for example, while exercising or playing) (EPA 2023c). SO_2 can also react with other compounds in the atmosphere to form small particles. These particles penetrate deeply into sensitive parts of the lungs and can cause or worsen respiratory disease, such as emphysema and bronchitis, and can aggravate existing heart disease, leading to increased hospital admissions and premature death. High concentrations of SO_2 can result in temporary breathing impairment for asthmatic children and adults who are active outdoors. Short-term exposures of asthmatic individuals to elevated SO_2 levels during moderate activity may result in breathing difficulties that can be accompanied by symptoms such as wheezing, chest tightness, or shortness of breath. Other effects that have been associated with longer-term exposures to high concentrations of SO_2, in conjunction with high levels of PM, include aggravation of existing cardiovascular disease, respiratory illness, and

alterations in the lungs' defenses. SO_2 also is a major precursor to $PM_{2.5}$, which is a significant health concern, and is a primary contributor to poor visibility. (See also health effects under "Particulate Matter [PM_{10} and $PM_{2.5}$]," above.)

Exposure to high concentrations of SO_2 for short periods of time can constrict the bronchi and increase mucous flow, making breathing difficult. Additional health effects of SO_2 are listed below.

- SO_2 can immediately irritate the lung and throat at concentrations greater than 6 ppm in many people.
- SO_2 can impair the respiratory system's defenses against foreign particles and bacteria, when exposed to concentrations less than 6 ppm for longer time periods.
- SO_2 can enhance the harmful effects of ozone. (Combinations of the two gases at concentrations occasionally found in the ambient air appear to increase airway resistance to breathing.)
- SO_2 tends to have more toxic effects when acidic pollutants, liquid or solid aerosols, and particulates are also present. For example, in the 1950s and 1960s, thousands of excess deaths occurred in areas where SO_2 concentrations exceeded 1 ppm for a few days and other pollutants were also high. Effects are more pronounced among mouth breathers (for example, people who are exercising or who have head colds). These effects are listed below.
    - SO_2 concentrations can result in health problems, such as episodes of bronchitis requiring hospitalization associated with lower-level acid concentrations.
    - SO_2 concentrations have been linked to self-reported respiratory conditions, such as chronic cough and difficult breathing, associated with acid aerosol concentrations (asthmatic individuals are especially susceptible to these effects. The elderly and those with chronic respiratory conditions may also be affected at lower concentrations than the general population).
    - Increased respiratory tract infections have been associated with longer-term, lower-level exposures to SO_2 and acid aerosols.
    - SO_2 concentrations are also known to result in subjective symptoms (for example, headaches and nausea) in the absence of pathological abnormalities, due to long-term exposure.
- SO_2 easily injures many plant species and varieties, both native and cultivated. Some of the most sensitive plants include various commercially valuable pines, legumes, red and black oaks, white ash, alfalfa, and blackberry. The effects include:
    - Visible injury to the most sensitive plants at exposures as low as 0.12 ppm for 8 hours.
    - Visible injury to many other plant types of intermediate sensitivity at exposures of 0.30 ppm for 8 hours.
- Positive benefits from low levels, in a very few species growing on sulfur deficient soils.

- Increases in SO_2 concentrations accelerate the corrosion of metals, probably through the formation of acids. (SO_2 is a major precursor to acidic deposition.) SO_2 may also damage stone and masonry, paint, various fibers, paper, leather, and electrical components.
- Increased SO_2 also contributes to impaired visibility. Particulate sulfate, much of which is derived from SO_2 emissions, is a major component of the complex total suspended particulate mixture.

As shown in **Table 4.3-2:** *Attainment Status for the San Joaquin Valley Air Pollution Control District*, the SJVAPCD is designated attainment or unclassified for all SO_2 state and federal ambient air quality standards, respectively. Due to the restrictions for the use of high sulfur fuels, reduction in gasoline and diesel sulfur contents and reduction in SO_2 emissions from other industrial sources, such as refineries, SO_2 pollution is no longer a major air quality concern in most of California, including the Project site.

Lead (Pb)

Lead in the atmosphere occurs as PM. Main sources of lead emissions include leaded gasoline, battery manufacture, paint, ink, ceramics, ammunition, and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. After the phase-out of leaded gasoline between 1978 and 1987, secondary lead smelters, battery recycling, and manufacturing facilities became lead emission sources of greater concern. Current federal standards for lead have no attainment designation, but areas lacking an attainment designation are treated as being in attainment of the standard. The SJVAPCD is designated as attainment for state standards and lead is no longer monitored in the ambient air of the SJVAPCD.

Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children, resulting in learning deficits, and lowered intelligent quotients. Studies also show that lead may be a factor in high blood pressure and subsequent heart disease. Lead can also be deposited on the leaves of plants, presenting a hazard to grazing animals and humans through ingestion.

Reactive Organic Gases and Volatile Organic Compounds

Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. There are several subsets of organic gases, including ROGs and VOCs. ROGs are a set of organic gases based on state rules and regulations. VOCs are similar to ROGs in that they include all organic gases except those exempted by federal law. The list of compounds excluded from the definition of VOC is provided by the SJVAPCD in SJVAPCD Rule 1020, Section 3.53. VOCs are emitted from incomplete combustion of hydrocarbons or other carbon-based fuels. Combustion engine exhaust, oil refineries, and oil-fueled power plants are the primary sources of hydrocarbons. Another source of hydrocarbons is evaporation from petroleum fuels, solvents, dry-cleaning solutions, and paint.

The primary health effects of hydrocarbons result from the formation of ozone and its related health effects. (See ozone health effects discussion above.) High levels of hydrocarbons in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. There are no separate federal or CAAQS for VOC. Carcinogenic forms of VOC are considered toxic air contaminants (TACs). An example is benzene, which is a carcinogen. The health effects of individual carcinogenic VOCs are described below under the heading "Toxic Air Contaminants."

Sulfates (SO_4^{2-})

Sulfates (SO_4^{2-}) are particulate products of combustion of sulfur-containing fossil fuels. When SO or SO_2 are exposed to oxygen they precipitate out into sulfates (SO_3 or SO_4^{2-}). Sulfates are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (that is, gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO_2 during the combustion process and is subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place relatively rapidly and completely in urban areas of California due to regional meteorological features.

CARB's sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardiopulmonary disease. Sulfates are particularly effective in degrading visibility, and, because they are usually acidic, can harm ecosystems and damage materials and property.

Hydrogen Sulfide (H_2S)

Hydrogen Sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy exploitation. In Kern County, H_2S is associated with geothermal activity, oil and gas production, refining, sewage treatment plants, and confined animal feeding operations.

Exposure to low concentrations of H_2S may irritate the eyes, nose, and throat. It may also cause difficulty in breathing for some asthmatics. Exposure to higher concentrations (above 100 ppm) of H_2S can cause olfactory fatigue, respiratory paralysis, and death. Brief exposures to high concentrations of H_2S, greater than 500 ppm, can cause a loss of consciousness. In most cases, the person appears to regain consciousness without any other effects. However, in many individuals, there may be permanent or long-term effects such as headaches, poor attention span, poor memory, and poor motor function. No health effects have been found in humans exposed to typical environmental concentrations of H_2S, 0.00011 to 0.00033 ppm. Deaths due to inhaling large amounts of H_2S have been reported in a variety of different work settings, including sewers, animal processing plants, waste dumps, sludge plants, oil and gas well drilling sites, and tanks and cesspools. Current federal standards for H_2S have no attainment designation and the SJVAPCD is designated as unclassified for state standards.

Visibility Reducing Particulates

Visibility reducing particles are a mixture of suspended PM consisting of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size, and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.

CARB does not yet have a measurement method that is accurate or precise enough to designate areas in the state as being in attainment or nonattainment. Thus, the entire state is unclassified.

Vinyl Chloride

Vinyl chloride monomer is a sweet smelling, colorless gas at ambient temperature. Landfills, publicly owned treatment works, and polyvinyl chloride (PVC) production are the major identified sources of vinyl chloride emissions in California. PVC can be fabricated into several products, such as pipes, pipefittings, and plastics. In humans, epidemiological studies of occupationally exposed workers have linked vinyl chloride exposure to development of liver angiosarcoma, which is a rare cancer, and have suggested a relationship between exposure and cancers of the lung and brain. There are currently no adopted ambient air standards for vinyl chloride.

Acute exposure of humans to high levels of vinyl chloride via inhalation has resulted in effects on the central nervous system, such as dizziness, drowsiness, headaches, and giddiness.

Vinyl chloride is reported to be slightly irritating to the eyes and respiratory tract in humans. Acute exposure to extremely high levels of vinyl chloride has caused loss of consciousness, irritation to the lungs and kidneys, and inhibition of blood clotting in humans and cardiac arrhythmias in animals.

Tests involving acute exposure of mice to vinyl chloride have shown a high acute toxicity from inhalation exposure. Long-term exposure to vinyl chloride has been linked with the following chronic health effects:

- Liver damage may result in humans from chronic exposure to vinyl chloride, through both inhalation and oral exposure.
- A small percentage of individuals occupationally exposed to high levels of vinyl chloride in air have developed a set of symptoms termed “vinyl chloride disease,” which is characterized by Raynaud’s phenomenon (fingers blanch and numbness and discomfort are experienced upon exposure to the cold), changes in the bones at the end of the fingers, joint and muscle pain, and scleroderma-like skin changes (thickening of the skin, decreased elasticity, and slight edema).
- Central nervous system effects (including dizziness, drowsiness, fatigue, headache, visual and/or hearing disturbances, memory loss, and sleep disturbances) as well as peripheral nervous system symptoms (peripheral neuropathy, tingling, numbness, weakness, and pain in fingers) have also been reported in workers exposed to vinyl chloride.

Several reproductive/developmental health effects from vinyl chloride exposure have been identified:

- Several case reports suggest that male sexual performance may be affected by vinyl chloride. However, these studies are limited by lack of quantitative exposure information and possible co-occurring exposure to other chemicals.
- Several epidemiological studies have reported an association between vinyl chloride exposure in pregnant women and an increased incidence of birth defects, while other studies have not reported similar findings.
- Epidemiological studies have suggested an association between men occupationally exposed to vinyl chloride and miscarriages in their wives' pregnancies, although other studies have not supported these findings.

Long-term exposure to vinyl chloride has also been identified as a cancer risk:

- Inhaled vinyl chloride has been shown to increase the risk of a rare form of liver cancer (angiosarcoma of the liver) in humans.
- Animal studies have shown that vinyl chloride, via inhalation, increases the incidence of angiosarcoma of the liver and cancer of the liver.

Toxic Air Contaminants

Hazardous air pollutants (HAPs) is a term used by the federal Clean Air Act (CAA) that includes a variety of pollutants generated or emitted by industrial production activities. Called "TACs" under California law (Health and Safety Code Sections 39650 et seq.), 10 pollutants have been identified through ambient air quality data as posing the most substantial health risk in California. Direct exposure to all of these pollutants has been shown to cause cancer, birth defects, damage to the brain and nervous system, and respiratory disorders. CARB provides emission inventories for TACs for only the larger air basins in the state including the SJVAB.

Emissions from the top 10 TACs in the SJVAB are presented in **Table 4.3-4:** *2023 Toxic Air Contaminant Emissions in the San Joaquin Valley Air Basin*. Similar to criteria pollutants, TACs are emitted from stationary sources, areawide sources, mobile sources, and natural sources.

Table 4.3-4: 2023 Toxic Air Contaminant Emissions in the San Joaquin Valley Air Basin

Toxic Air Contaminant	Emissions (tons/year)
Acetaldehyde	3,512
DPM	2,520
Formaldehyde	2,318
Benzene	1,020
Perchloroethylene	448
1,3-Butadiene	269
Methylene chloride	247
PAHs	238
Manganese	217
Acrolein	153

Source: SJVAPCD 2024b

Key: DPM = diesel particulate matter; PAH = polycyclic aromatic hydrocarbons

TACs do not have ambient air quality standards. Since no safe levels of TACs can be determined, there are no air quality standards for TACs. Instead, TAC impacts are evaluated by calculating the health risks associated with a given exposure. The requirements of the Air Toxic "Hot Spots" Information and Assessment Act (Ibid Section 44300 et seq.) apply to facilities that use, produce, or emit toxic chemicals. Facilities that are subject to the toxic emission inventory requirements of the Act must prepare and submit toxic emission inventory plans and reports and periodically update those reports. Within the Kern County portion of the SJVAB, no facility in the SJVAPCD has reported cancer risk exceeding 10 in 1 million or a hazard index over 1.0 and, therefore, are not considered significant by the standards of the Hot Spots program in the SJVAPCD.

Health Effects and Risks of Toxic Air Contaminants

Acetaldehyde

Acetaldehyde is classified as a federal HAP and as a California TAC. Acetaldehyde is both directly emitted into the atmosphere and formed in the atmosphere from photochemical oxidation. Sources include combustion processes such as exhaust from mobile sources and fuel combustion from stationary internal combustion engines, boilers, and process heaters. In California, photochemical oxidation is the largest source of acetaldehyde concentrations in the ambient air. According to CARB (2009), approximately 85 percent of the emissions of acetaldehyde in the SJVAB are from mobile sources—primarily diesel-fueled. Areawide sources, such as residential wood combustion, account for approximately 10 percent. However, in general, acetaldehyde concentrations are higher indoors than outdoors, due in part to the abundance of combustion sources, such as cigarettes, fireplaces, and woodstoves.

The primary acute effect of inhalation exposure to acetaldehyde is irritation of the eyes, skin, and respiratory tract in humans. At higher exposure levels, erythema, coughing, pulmonary edema, and necrosis may also occur. Acute inhalation of acetaldehyde resulted in a depressed respiratory rate and elevated blood pressure in experimental animals. Tests involving acute exposure of rats, rabbits, and hamsters have demonstrated acetaldehyde to have low acute toxicity from inhalation and moderate acute toxicity from oral or dermal exposure.

Benzene

Benzene is highly carcinogenic and occurs throughout California. Benzene also has noncancer-related health effects. The primary sources of benzene emissions in the SJVAB are mobile sources (approximately 67 percent) and stationary sources (approximately 32 percent). The mobile source emissions are primarily gasoline-fueled.

Brief inhalation exposure to high concentrations can cause central nervous system depression. Acute effects include central nervous system symptoms of nausea, tremors, drowsiness, dizziness, headache, intoxication, and unconsciousness. Ingestion of large amounts of benzene may result in vomiting, dizziness, and convulsions in humans. Exposure to benzene in liquid and vapor form may irritate the skin, eyes, and upper-respiratory tract in humans. Redness and blisters may result from dermal exposure to benzene.

Chronic inhalation of certain levels of benzene causes blood disorders in humans; specifically, benzene affects bone marrow (the tissues that produce blood cells). Aplastic anemia, excessive bleeding, and damage to the immune system (by changes in blood levels of antibodies and loss of white blood cells) may develop. Increased incidence of leukemia (cancer of the tissues that form white blood cells) has been observed in humans who have been occupationally exposed to benzene.

1,3-Butadiene (Vinyl Ethylene)

1,3-butadiene has been identified as a carcinogen in California. The majority of 1,3-butadiene emissions come from incomplete combustion of petroleum-based fuels. Mobile sources account for 48 percent of total SJVAB emissions. Area sources, such as agricultural waste burning, open burning associated with forest management, and woodstoves and fireplaces, contribute to approximately 27 percent. Since the majority of 1,3-butadiene emissions are from incomplete combustion of gasoline and diesel fuels, CARB's 1990 adopted low-emission vehicle/clean fuels regulations and the 1996 Phase II reformulated gasoline regulations are expected to continue to reduce 1,3-butadiene emissions from cars and light-duty trucks as the fleet turns over and new low-emission vehicles are introduced into the fleet.

At very high levels, 1,3- butadiene vapors cause neurological effects, such as blurred vision, fatigue, headache, and vertigo. Dermal exposure of humans to 1,3-butadiene causes a sensation of cold, followed by a burning sensation, which may lead to frostbite.

One epidemiological study reported that chronic (long-term) exposure to 1,3-butadiene by inhalation resulted in an increase in cardiovascular diseases, such as rheumatic and arteriosclerotic heart diseases, while other human studies have reported effects on the blood. A large epidemiological study of synthetic rubber industry workers demonstrated a consistent association between 1,3-butadiene exposure and occurrence of leukemia. Several epidemiological studies of workers in styrene-butadiene rubber factories have shown an increased incidence of respiratory, bladder, stomach, and lymphato-hematopoietic cancers. However, these studies are not sufficient to determine a causal association between 1,3-butadiene exposure and cancer, due to possible exposure to other chemicals and other confounding factors.

Carbon Tetrachloride (Tetrachloromethane)

Carbon tetrachloride is a central nervous system depressant, which the EPA has classified as a Group B2, or a probable human carcinogen. The primary sources of carbon tetrachloride in California include chemical and allied product manufacturers and petroleum refineries. Unlike many of the other TACs, carbon tetrachloride is emitted primarily by sources other than motor vehicles, and there are virtually no emissions within the SJVAB or California.

Acute inhalation and oral exposures to high levels of carbon tetrachloride have been observed primarily to damage the liver (swollen, tender liver, changes in enzyme levels, and jaundice) and kidneys (nephritis, nephrosis, proteinuria) of humans. Depression of the central nervous system has also been reported. Symptoms of acute exposure in humans include headache, weakness, lethargy, nausea, and vomiting. Delayed pulmonary edema (fluid in lungs) has been observed in humans who have been exposed to high levels of carbon tetrachloride by inhalation and ingestion, but this is believed to be due to injury to the kidney rather than direct action of carbon tetrachloride on the lung. Chronic inhalation or oral exposure to carbon tetrachloride produces liver and kidney damage in humans and animals.

Chromium, Hexavalent

Hexavalent chromium (chromium [VI]) emissions come mainly from electric generation, aircraft and parts manufacturing, and fabricated metal produce manufacturing. In California, hexavalent chromium has been identified as a carcinogen. Epidemiological evidence suggests that exposure to inhaled hexavalent chromium may result in lung cancer.

The respiratory tract is the major target organ for chromium (VI) following inhalation exposure in humans. Other effects from acute inhalation exposure to very high concentrations of chromium (VI) include gastrointestinal and neurological effects, while dermal exposure causes skin burns in humans. Chronic inhalation exposure to chromium (VI) in humans results in effects on the respiratory tract, with perforations and ulcerations of the septum, bronchitis, decreased pulmonary function, pneumonia, asthma, and nasal itching and soreness reported. Chronic human exposure to high levels of chromium (VI) by inhalation or oral exposure may produce effects on the liver, kidney, gastrointestinal and immune systems, and possibly the blood.

Para-Dichlorobenzene

In California, para-dichlorobenzene has been identified as a carcinogen. In addition to the carcinogenic impact, long-term inhalation exposure may affect the liver, skin, and central nervous system in humans. Para-dichlorobenzene is a chlorinated aromatic hydrocarbon (NPIC 2010). It was first registered for use in the United States in 1942, and it is sometimes called 1,4-dichlorobenzene. It is a fumigant insecticide and repellent. Para-dichlorobenzene turns directly from a solid into a gas, a process called sublimation.

The primary sources of para-dichlorobenzene include consumer products such as nonaerosol insect repellents and solid/gel air fresheners. These sources contribute to 97 percent of SJVAB para-dichlorobenzene emissions.

People who have been exposed to para-dichlorobenzene have experienced nausea, vomiting, dizziness, fatigue, and headaches. Para-dichlorobenzene vapor can also irritate the eyes and nasal passages. It may also cause kidney and liver damage in pets.

Formaldehyde

Formaldehyde is both directly emitted into the atmosphere and formed in the atmosphere as a result of photochemical oxidation. Photochemical oxidation is the largest source of formaldehyde concentrations in California ambient air. Directly emitted formaldehyde is a product of incomplete combustion. One of the primary sources of formaldehyde is vehicular exhaust. In fact, approximately 76 percent of the formaldehyde emissions in the SJVAB are from mobile sources, of which the source is predominantly diesel-fueled. Formaldehyde is also used in resins, fumigants, and soil disinfectants, and it can be found in many consumer products as an antimicrobial agent.

The major toxic effects caused by acute formaldehyde exposure via inhalation are eye, nose, and throat irritation and effects on the nasal cavity. Other effects seen from exposure to high levels of formaldehyde in humans are coughing, wheezing, chest pains, and bronchitis. Chronic exposure to formaldehyde by inhalation in humans has been associated with respiratory symptoms and irritation of the eye, nose, and throat. Animal studies have reported effects on the nasal respiratory epithelium and lesions in the respiratory system from chronic inhalation exposure to formaldehyde.

Occupational studies have noted statistically significant associations between exposure to formaldehyde and increased incidence of lung and nasopharyngeal cancer. This evidence is considered to be "limited," rather than "sufficient," due to possible exposure to other agents that may have contributed to the excess cancers. The EPA considers formaldehyde to be a probable human carcinogen and has ranked it in EPA Group B1. In California, formaldehyde has been identified as a carcinogen.

Methylene Chloride (Dichloromethane)

In California, methylene chloride has been identified as a carcinogen. In addition, chronic exposure can lead to bone marrow, hepatic, and renal toxicity. Methylene chloride is used as a solvent, a blowing and cleaning agent in the manufacture of polyurethane foam and plastic fabrication, and as a solvent in paint stripping operations. Approximately 80 percent of the SJVAB emissions of methylene chloride are from paint removers/strippers, automotive brake cleaners, and other consumer products. The statewide trend for methylene chloride shows that by comparing the statewide average methylene chloride concentration for 1990 to 1992 to that for 2005 to 2007 the result is a 77 percent decrease in both concentration and health risk.

Case studies of methylene chloride poisoning during paint stripping operations have demonstrated that inhalation exposure to extremely high levels of methylene chloride can be fatal to humans. Acute inhalation exposure to high levels of methylene chloride in humans has affected the central nervous system including decreased visual, auditory, and psychomotor functions, but these effects are reversible once exposure ceases. Methylene chloride also irritates the nose and throat at high concentrations. The major effects from chronic inhalation exposure to methylene chloride in humans are effects on the central nervous system (for example, headaches, dizziness, nausea, and

memory loss). In addition, chronic exposure can lead to bone marrow, hepatic, and renal toxicity. The EPA considers methylene chloride to be a probable human carcinogen and has ranked it in EPA Group B2. The State of California considers methylene chloride to be a carcinogen.

Perchloroethylene (Tetrachloroethylene)

In California, tetrachloroethylene (PERC) has been identified as a carcinogen. PERC vapors are irritating to the eyes and respiratory tract. Following chronic exposure, workers have shown signs of liver toxicity as well as kidney dysfunction and neurological disorders.

PERC is used as a solvent, primarily in dry-cleaning operations. PERC is also used in degreasing operations, paints and coatings, adhesives, aerosols, specialty chemical production, printing inks, silicones, rug shampoos, and laboratory solvents. In the SJVAB, approximately 65 percent of the emissions of PERC are from such stationary sources as dry-cleaning plants and manufacturers of aircraft parts and fabricated metal parts. Areawide sources contribute approximately 35 percent. In comparing the statewide PERC concentration for 1990 to 1992 to that for 2005 to 2007 the result is an 84 percent decrease in both concentration and health risk.

Breathing PERC for short periods of time can adversely affect the human nervous system. Effects range from dizziness, fatigue, headaches, and sweating to incoordination and unconsciousness. Contact with PERC liquid or vapor irritates the skin, eyes, nose, and throat. These effects are not likely to occur at levels of PERC that are normally found in the environment (EPA 1994).

Breathing PERC over longer periods of time can cause liver and kidney damage in humans. Workers exposed repeatedly to large amounts of PERC in air can also experience memory loss and confusion. Laboratory studies show that PERC causes kidney and liver damage and cancer in animals exposed repeatedly by inhalation and by mouth. Repeat exposure to large amounts of PERC in air may likewise cause cancer in humans.

Diesel Particulate Matter

Diesel exhaust and many individual substances contained in it (for example, arsenic, benzene, formaldehyde, and nickel) have the potential to contribute to mutations in cells that can lead to cancer. More than 40 diesel exhaust components are listed by the state and federal government as TACs or HAPs, respectively. In California, particulate emissions from diesel-fueled engines has been identified as a carcinogen (17 California Code of Regulations [CCR] Section 93000). Most researchers believe that diesel exhaust particles contribute the majority of the risk because the particles in the exhaust carry many harmful organics and metals.

DPM is emitted from both mobile and stationary sources. In the SJVAB, on-road diesel-fueled vehicles contribute approximately 61 percent of the total, with an additional 38 percent attributed to other diesel-fueled mobile sources (for example, construction and agricultural equipment).

Long-term exposure to diesel exhaust particles poses the highest cancer risk of any TAC evaluated by the California Office of Environmental Health Hazard Assessment (OEHHA). CARB estimates

that about 70 percent of the cancer risk that the average Californian faces from breathing TACs stems from diesel exhaust particles.

In its comprehensive assessment of diesel exhaust, OEHHA analyzed more than 30 studies of people who worked around diesel equipment, including truck drivers, railroad workers, and equipment operators. The studies showed these workers were more likely than workers who were not exposed to diesel emissions to develop lung cancer. These studies provide strong evidence that long-term occupational exposure to diesel exhaust increases the risk of lung cancer. Using information from OEHHA's assessment, CARB estimates that diesel-particle levels measured in California's air in 2000 could cause 540 "excess" cancers (beyond what would occur if there were no diesel particles in the air) in a population of 1 million people over a 70-year lifetime (OEHHA 2002).

Other researchers and scientific organizations, including the National Institute for Occupational Safety and Health, have calculated similar cancer risks from diesel exhaust as those calculated by the OEHHA and CARB.

Exposure to diesel exhaust can have immediate health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. In studies with human volunteers, diesel exhaust particles made people with allergies more susceptible to the materials to which they are allergic (for example, dust and pollen). Exposure to diesel exhaust also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks.

Diesel engines are a major source of fine-particle pollution, especially $PM_{2.5,}$ which has specific health risks as noted previously in this section. The elderly and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle pollution.

Numerous studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among people suffering from respiratory problems. Because children's lungs and respiratory systems are still developing, they are also more susceptible than healthy adults to fine particles. Exposure to fine particles is associated with increased frequency of childhood illnesses and can reduce lung function in children. In California, diesel exhaust particles have been identified as carcinogens.

Polycyclic Aromatic Hydrocarbons

The term polycyclic aromatic hydrocarbons (PAHs) refers to a group of several hundred chemically related, environmentally persistent organic compounds of various structures and varied toxicity. They are byproducts of natural-gas combustion. Most of them are formed by a process of thermal decomposition (pyrolysis) and subsequent recombination (pyrosynthesis) of organic molecules. PAHs enter the environment through various routes and are usually found as a mixture containing two or more of these compounds (for example, soot). They have been shown to cause carcinogenic and mutagenic effects and are potent immunosuppressants. Effects have been documented on immune system development.

Other Health Effects

Valley Fever

Valley Fever or coccidioidomycosis is one of the most studied and oldest known fungal infections. Coccidioidomycosis was first discovered in the early 1890s in Domingo Ezcurra, an Argentinean soldier, and in 1900 was established as a fungal disease. After an outbreak in the 1930s in the SJV of California, this disease was given its nickname "San Joaquin Valley Fever," often shortened further to "Valley Fever" (Los Angeles County Department of Health Services, Public Health 2004).

Valley Fever is primarily a disease of the lungs caused by inhalation of spores of the *Coccidioides immitis* fungus. The *Coccidioides* fungus resides in the soil in southwestern United States, northern Mexico, and parts of Central and South America. When weather and moisture conditions are favorable, the fungus "blooms" and forms many tiny spores that lie dormant in the soil. The spores are found in the top few inches of soil, become airborne when the soil is disturbed by wind, vehicles, excavation, or other ground-moving activities, and are subsequently inhaled into the lungs. After the fungal spores have settled in the lungs, they change into a multicellular structure called a spherule. Fungal growth in the lungs occurs as the spherule grows and bursts, releasing endospores, which then develop into more spherules.

Infection occurs when the spores of the fungus become airborne and are inhaled. The fungal spores become airborne when contaminated soil is disturbed by human activities (for example, construction activities, agricultural activities, and phenomena like windstorms, dust storms, and earthquakes).

Valley Fever symptoms generally occur within one to three weeks of exposure. Approximately 60 percent of Valley Fever cases are mild and display flu-like symptoms or no symptoms at all. The remainder developed flu-like symptoms (for example, fatigue, cough, chest pain, fever, rash, headache, and joint aches) that can last for a month and tiredness that can sometimes last for longer than a few weeks. In some cases, painful red bumps may develop. A small percentage of infected persons (<1 percent) can develop disseminated disease that spreads outside the lungs to the brain, bone, and skin. Without proper treatment, Valley Fever can lead to severe pneumonia, meningitis, and even death.

However, these symptoms are not unique to Valley Fever and may be caused by other illnesses as well. Identifying and confirming this disease requires specific laboratory tests such as: (1) microscopic identification of the fungal spherules in the infected tissue, sputum, or body fluid sample; (2) growing a culture of *Coccidioides immitis* from a tissue specimen, sputum, or body fluid; (3) detecting antibodies (serological tests specifically for Valley Fever) against the fungus in blood serum or other body fluids; and (4) administering the SJV Fever skin test (called coccidioidin or spherulin), which indicates prior exposure to the fungus.

Valley Fever is not contagious and, therefore, cannot be passed from person to person. Most of those who are infected will recover without treatment within six months and will have a lifelong immunity to the fungal spores. In severe cases, such as patients with rapid and extensive primary

illness, those who are at risk for dissemination of disease, and those who have disseminated disease, antifungal drug therapy is used. Only 1 percent to 2 percent of those exposed who seek medical attention will develop a disease that disseminates (spreads) to other parts of the body other than the lungs. **Table 4.3-5:** *Range of Valley Fever Cases*, presents the various infection classifications and normal diagnostic spread of Valley Fever cases.

Table 4.3-5: Range of Valley Fever Cases

Infection Classification	Percent of Total Diagnosed Cases
Asymptomatic infections	60
Infections that resolve spontaneously (with lifelong immunity)	35
Chronic disease or disease disseminated throughout the body	Up to 5
Meningeal infection (affecting brain and/or spinal cord and requiring lifetime treatment)	0.15–0.75

Source: Hector 2005

Factors that affect the susceptibility to coccidioidal dissemination are race, sex, pregnancy, age, and immunosuppression. According to data gathered by the Kern County Public Health Services Department, Hispanic and Latino Americans are 3.4 times more likely than whites to develop coccidioidal dissemination, African Americans are 13.7 times more likely, and Filipinos are 175.5 times more likely. Regarding the number of deaths attributed to the disease, compared to whites, the number of Hispanic/Latino is five times greater; African Americans, 23.3 times greater; and Filipinos, 191.4 times greater. In addition, residents new to the SJV are at a higher risk of infection due primarily to low immunity to this particular fungus (see also KCPHS 2014).

Asbestos

Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of asbestos are chrysotile, amosite, and crocidolite. Ultramafic, serpentinized rock is closely associated with asbestos and is chemically composed of the following list of minerals:

- Antigorite, $(Mg, Fe)_3Si_2O_5(OH)_4$
- Clinochrysotile, $Mg_3Si_2O_5(OH)_4$
- Lizardite, $Mg_3Si_2O_5(OH)_4$
- Orthrochrysotile, $Mg_3Si_2O_5(OH)_4$
- Parachrsotile, $(Mg, Fe)_3Si_2O_5(OH)_4$

These minerals have essentially the same chemistry but different structures. Chrysotile minerals are more likely to form serpentinite asbestos; however, serpentinite is uncommon to sedimentary soil found in the Project site.

Asbestos can adversely affect humans only in its fibrous form, and these fibers must be broken and dispersed into the air and then inhaled. During geological processes (for example, fault movement), the asbestos mineral can be crushed, causing it to become airborne. It also enters the air or water

from the breakdown of natural deposits. Constant exposure to asbestos at high levels on a regular basis may cause cancer in humans. The two most common forms of cancer are lung cancer and mesothelioma, a rare cancer of the lining that covers the lungs and stomach.

Chrysotile, also known as white asbestos, is the most common type of asbestos found in buildings. Chrysotile makes up approximately 90 percent to 95 percent of all asbestos contained in buildings in the United States. Project construction sometimes requires the demolition of existing buildings where construction occurs. Buildings often include materials containing asbestos. Most demolitions and many renovations are subject to an asbestos inspection prior to start of activity. The demolition, renovation, or removal of asbestos-containing building materials (ACBM) is subject to the limitations of the National Emissions Standards for HAPs (NESHAP) regulations as listed in the Code of Federal Regulations (CFR) requiring notification, inspection, and compliance with local air district regulations. The SJVAPCD requires compliance with NESHAP and has adopted Rule 4002 to protect the public from asbestos exposure, promote compliance by providing accurate information to the regulated community, and provide consistency and direction to all SJVAPCD asbestos inspectors involved in enforcement of NESHAP.

In addition, asbestos is also found in a natural state. Exposure and disturbance of rock and soil that naturally contains asbestos can result in the release of fibers to the air and consequent exposure to the public. Asbestos most commonly occurs in ultramafic rock that has undergone partial or complete alteration to serpentine rock (serpentinite) and often contains chrysotile asbestos. In addition, another form of asbestos, tremolite, can be found associated with ultramafic rock, particularly near faults. Sources of asbestos emissions include unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading of development projects, and at mining operations.

To address some of the health concerns associated with exposure to asbestos from these activities, CARB has adopted two Airborne Toxic Control Measures (ATCMs). CARB has an ATCM for construction, grading, quarrying, and surface mining operations requiring the implementation of mitigation measures to minimize emissions of asbestos-laden dust. This ATCM applies to road construction and maintenance, construction and grading operations, and quarries and surface mines when the activity occurs in an area where naturally occurring asbestos is likely to be found. Areas are subject to the regulation if they are identified on maps published by the California Department of Conservation as ultramafic rock units or if the Air Pollution Control Officer (APCO) or owner/operator has knowledge of the presence of ultramafic rock, serpentine, or naturally occurring asbestos on the site. The ATCM also applies if ultramafic rock, serpentine, or asbestos is discovered during any operation or activity.

In addition, CARB has an ATCM for surfacing applications. This ATCM applies to any person who produces, sells, supplies, offers for sale or supply, uses, applies, or transports any: (1) aggregate material extracted from property where any portion of the property is located in a geographic ultramafic rock unit; or (2) aggregate material extracted from property that is not located in a geographic ultramafic rock unit, if:

- The material has been evaluated at the request of the APCO and determined to be ultramafic rock or serpentine.
- Material tested at the request of the APCO is determined to have an asbestos content of 0.25 percent or greater or is determined by the owner/operator of a facility to be ultramafic rock or serpentine.
- The material has an asbestos content of 0.25 percent or greater.

The ATCM prohibits a person from using, applying, selling, supplying, or offering for sale or supply any restricted material for surfacing unless it has been tested and determined to have an asbestos content that is less than 0.25 percent.

Carbon Dioxide

Carbon dioxide (CO_2) is considered minimally toxic by inhalation and is classified as an asphyxiant, displacing the oxygen in air. Symptoms of CO_2 exposure may include headache and drowsiness. Individuals exposed to higher concentrations may experience rapid breathing, confusion, increased cardiac output, elevated blood pressure, and increased arrhythmias. Extreme CO_2 concentrations can lead to death by asphyxiation (Mathews 2022; Appendix B-2).

Additionally, CO_2, along with several other compounds, is considered a greenhouse gas that is contributing to climate change. Discussion of CO_2 and other greenhouse gases is included in Section 4.8, *Greenhouse Gas Emissions*, of this Draft EIR.

Coronavirus Disease 2019

Coronavirus Disease 2019 (COVID-19) is a new disease, caused by a novel (or new) human coronavirus that has not previously been seen in humans. The first known case of COVID-19 was confirmed in the United States on January 20, 2020 (Holshue et al. 2020). There are many types of human coronaviruses, including some that commonly cause mild upper-respiratory tract illnesses. COVID-19 is a respiratory illness that can spread from person to person. According to the Center for Disease Control (CDC), older adults and people who have severe underlying medical conditions like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness. Symptoms may appear 2 to 14 days after the exposure to the virus and may include, but are not limited to: fever or chills, cough, shortness of breath or difficulty breathing, fatigue, muscle or body aches, headache, loss of taste or smell, sore throat, congestion or runny nose, nausea or vomiting, and diarrhea (CDC 2025a). According to the CDC, COVID-19 is believed to spread between people who are in close contact with one another (within about 6 feet) through respiratory droplets produced when an infected person coughs, sneezes, or talks (CDC 2025b). COVID-19 research and causality is still in the beginning stages. A nationwide study by Harvard University found a linkage between long-term exposure to PM2.5 (averaged from 2000 to 2016) as air pollution and statistically significant increased risk of COVID-19 death in the United States (Harvard 2020). Though COVID-19 remains a concern world-wide, the national public health emergency declaration regarding COVID-19 ended on May 11, 2023.

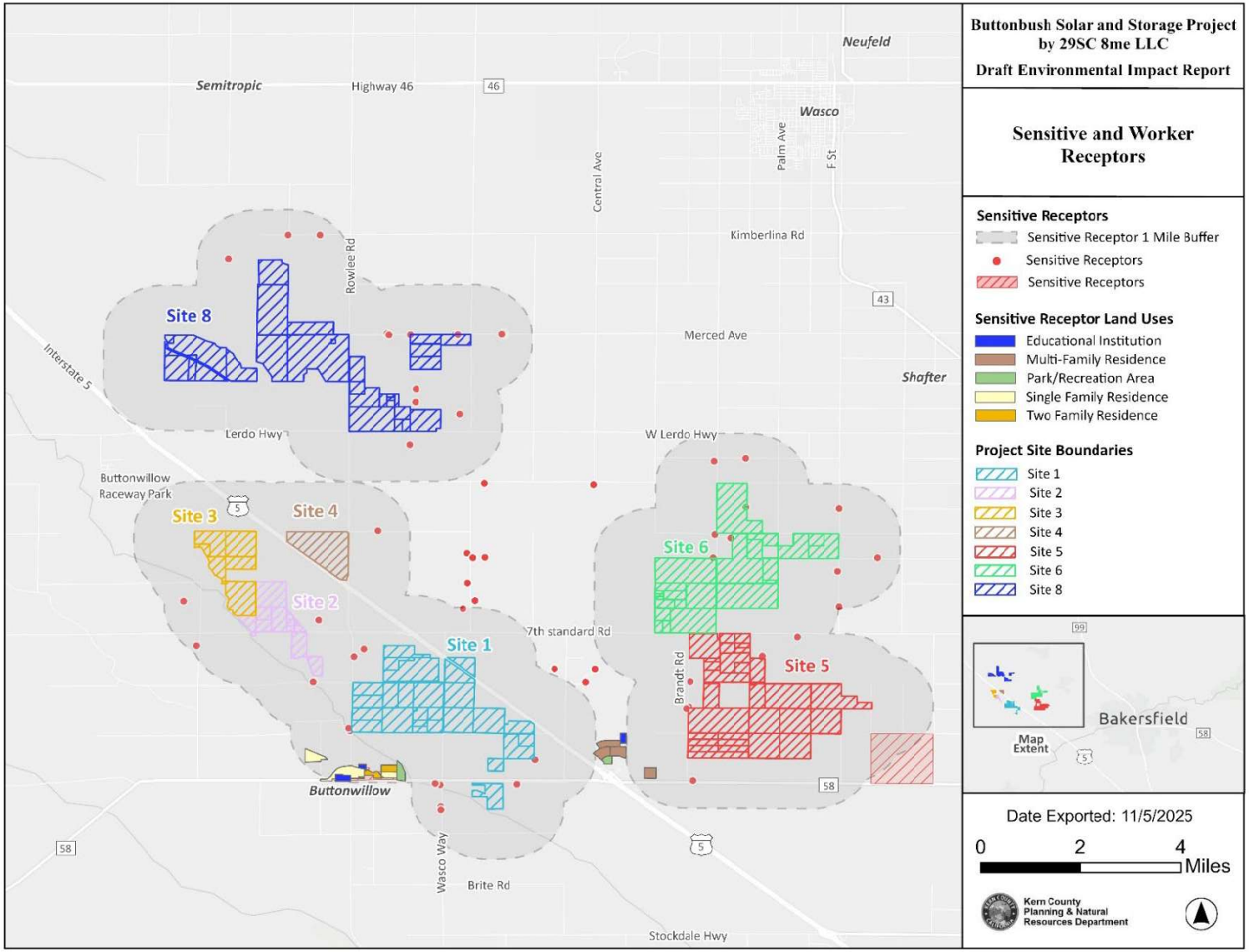
Sensitive and Worker Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Land uses that can be considered sensitive receptors include residential communities, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Sensitive individuals with compromised immune systems (for example, children and the elderly) may be exposed to emissions from the construction and operation of the proposed Project. Worker receptors refer to employees and locations where people work. Impacts on sensitive receptors are of particular concern because they are the people most vulnerable to the effects of air pollution. Sensitive receptors within one mile of the project boundaries are shown in **Figure 4.3-1:** S*ensitive and Worker Receptors*.

Odorous Compounds

Odor refers to the perception or sensation experienced when one or more volatilized chemical compounds come in contact with receptors on the olfactory nerves. Odorant refers to any volatile chemical in the air that is part of the perception of odor by a human. The difference in sensory and physical responses experienced by individuals is responsible for the significant variability in the individual sensitivity to the quality and intensity of an odorant.

Figure 4.3-1: Sensitive and Worker Receptors



4.3.3 Regulatory Setting

Air quality in the Project site is addressed through the efforts of various federal, state, regional, and local government agencies. The agencies primarily responsible for improving the air quality within the county include the EPA, CARB, SJVAPCD, and the Kern Council of Governments (Kern COG). These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policymaking, education, and a variety of programs. The agencies primarily responsible for improving the air quality within Kern County are discussed below, along with their individual responsibilities.

Federal

U.S. Environmental Protection Agency

The principal air quality regulatory mechanism on the federal level is the CAA as amended in 1990 and, in particular, the NAAQS established by the EPA pursuant to the CAA. These standards identify levels of air quality for "criteria" pollutants that are considered the maximum levels of ambient (background) air considered safe, with an adequate margin of safety, to protect public health and welfare. The criteria pollutants include ozone, CO, NO_2, PM_{10}, $PM_{2.5}$, SO_2, which is a form of SO_X, and Pb. The EPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and those that are under the exclusive authority of the federal government (for example, aircraft, locomotives, and interstate trucking). The EPA's primary role at the state level is to oversee the state air quality programs. The EPA sets federal vehicle and stationary-source emission standards and oversees approval of all State Implementation Plans (SIPs), as well as providing research and guidance in air pollution programs. The SIP is a state-level document that identifies all air pollution control programs within California that are designed to help the state meet the NAAQS.

Attainment defines the status of a given airshed with regard to NAAQS requirements. Airsheds not meeting these standards are classified as "nonattainment."

EPA Emission Standards

The EPA establishes and maintains emission standards of performance of new stationary sources under CAA Section 111(b), as the New Source Performance Standards (40 CFR 60). Categories of existing stationary sources can also be retroactively controlled under CAA Section 111(d).

Categories of sources that cause HAP emissions are controlled through separate standards under CAA Section 112: NESHAP. These standards are specifically designed to reduce the potency, persistence, or potential bioaccumulation of toxic air pollutants. The emission standards for HAPs under CAA Section 112 prevent adverse health risks and carcinogenic effects from targeted types of facilities.

Emission Standards for Off-Road Diesel Engines

To reduce emissions from nonroad diesel equipment, the EPA established a series of increasingly strict emission standards for new off-road diesel engines. Tier 1 standards were phased in on newly manufactured equipment from 1996 through 2000, depending on the engine horsepower category. Tier 2 standards were phased in on newly manufactured equipment from 2001 through 2006. Tier 3 standards were phased in on newly manufactured equipment from 2006 through 2008. Tier 4 standards, which require advanced emission-control technology, were phased in from 2008 through 2015.

Emission Standards for Heavy-Duty Vehicles

The EPA has established a series of increasingly strict emission standards for new heavy-duty bus and truck engines. Emissions from heavy-duty trucks are managed by regulations and emission limits implemented at the federal, state, and local levels. In December 2000, the EPA signed the Heavy-Duty Highway Rule, which reduces emissions from on-road, heavy-duty diesel trucks by establishing a series of increasingly strict emission standards for new engines. Manufacturers were required to produce new diesel vehicles that meet PM and NO_X emission standards beginning with model year 2007, with the phase-in period being between 2007 and 2010, according to a percentage-of-sales basis: 50 percent from 2007 to 2009 and 100 percent in 2010. Requirements apply to engines installed in all vehicles with Gross Vehicle Weight Rating above 14,000 pounds and some engines installed in vehicles with Gross Vehicle Weight Rating between 8,500 and 14,000 pounds.

State

California Air Resources Board

CARB, a department of the California EPA, oversees air quality planning and control throughout California by administering the SIP. Its primary responsibility lies in ensuring implementation of the 1989 California Clean Air Act (CCAA), responding to the federal CAA requirements, and regulating emissions from motor vehicles sold in California. It also sets fuel specifications to further reduce vehicular emissions.

The CCAA establishes a legal mandate to achieve many of the CAAQS by the earliest practical date. These standards apply to the same criteria pollutants as the federal CAA, and also include sulfate, visibility reducing particulates, H_2S, and vinyl chloride. They are also more stringent than the federal standards.

CARB is also responsible for regulations pertaining to TACs. The "Tanner Act," enacted in 1983, directed CARB to identify TACs and to adopt ATCMs to "… reduce, avoid, or eliminate the emissions of a toxic air contaminant." To date, CARB has formally identified 21 TACs and has adopted 26 ATCMs (CARB 2015). The Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588; Health & Safety Code Sections 44300 et seq.) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities

of certain substances their facilities routinely release into their air basin. Each air pollution control district ranks the data into high, intermediate, and low priority categories. When considering the ranking, the potency, toxicity, quantity, volume, and proximity of the facility to receptors are given consideration by an air district. AB 2588 was amended in 1992 by Senate Bill (SB) 1731 and further modified by AB 564 in 1996. The goal of the Air Toxics "Hot Spots" Act, as amended, is to collect emission data indicative of routine predictable releases of toxic substances to the air, to identify facilities having localized impacts, to evaluate health risks from exposure to the emissions, to notify nearby residents of significant risks, and reduce risk below the determined level of significance (CARB 2014).

CARB also has on-road and off-road engine emission reduction programs that indirectly affect the proposed Project's emissions through the phasing in of cleaner on-road and off-road equipment engines. Additionally, CARB has a Portable Equipment Registration Program that allows owners or operators of portable engines and associated equipment to register their units under a statewide portable program to operate their equipment that must meet specified program emission requirements throughout California without having to obtain individual permits from local air districts.

The state has also enacted an ATCM for the reduction of DPM and criteria pollutant emissions from in-use, off-road, diesel-fueled vehicles (CCR Title 13, Article 4.8, Chapter 9, Section 2449). This regulation provides target emission rates for PM and NO_X emissions from owners of fleets of diesel-fueled off-road vehicles and applies to equipment fleets of three specific sizes and the target emission rates are reduced over time (CARB 2007).

California Renewables Portfolio Standard Program

Established in 2002 under SB 1078 and accelerated by SB 107 [2006] and SB 2 [2011], California's Renewable Portfolio Standard obligates investor-owned utilities, energy service providers, and community choice aggregators to procure 33 percent of their electricity from renewable energy sources by 2020. In 2015, SB 350 further increased the Renewables Portfolio Standard to 50 percent by 2030. The legislation also included interim targets of 40 percent by 2024 and 45 percent by 2027. The California Public Utilities Commission (CPUC) and the California Energy Commission are jointly responsible for implementing the program. On September 10, 2018, Governor Jerry Brown signed SB 100, which further increased California's Renewables Portfolio Standard and requires retail sellers and local publicly owned electric utilities to procure eligible renewable electricity for 44 percent of retail sales by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030, and that CARB should plan for 100 percent eligible renewable energy resources and zero-carbon resources by December 31, 2045. Transitioning from electricity generated by fossil fuels to renewable sources will reduce air pollutant emissions.

California State Implementation Plan

The CAA (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as the SIP. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The CAA Amendments dictate that states containing areas violating

the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The EPA has the responsibility to review all SIPs to determine if they conform to the requirements of the CAA. State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the EPA for approval and publication in the Federal Register.

Toxic Air Contaminants Regulations

CARB regulates TACs primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588). AB 1807 created California's program to reduce exposure to air toxics. AB 2588 supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks. The California OEHHA is required to develop guidelines for health risk assessments under AB 2588. These guidelines provide the scientific basis for the values used to assess the risk of emissions exposure from facilities and new sources. Additional information on the health risk assessment is provided below in Section 4.3.4, *Methodology*.

In August 1998, CARB identified particulate emissions from diesel-fueled engines as TACs. In September 2000, CARB approved a comprehensive diesel risk-reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. An ongoing process, CARB reviews air contaminants and identifies those that are classified as TACs. CARB also continues to establish new programs and regulations for the control of TACs, including DPM, as appropriate.

Local

Kern County General Plan

The Project site is located within the unincorporated area of Kern County and, therefore, is subject to applicable polices and measures of the Kern County General Plan (KCGP). The Land Use, Conservation, and Open Space Element, Safety Element, and the Energy Element of the KCGP include goals, policies, and implementation measures related to air quality that apply to the proposed Project, as described below.

Chapter 1. Land Use, Conservation, and Open Space Element

1.10.2. Air Quality

Policies

Policy 18. The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations and in the valley region to meet attainment goals.

Policy 19. In considering discretionary projects for which an EIR must be prepared pursuant to the California Environmental Quality Act, the appropriate decision-making body, as part of its deliberations, will ensure that:

a) All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and

b) The benefits of the proposed Project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to the California Environmental Quality Act (CEQA).

Policy 20. The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District on ministerial permits.

Policy 21. The County shall support air districts' efforts to reduce PM_{10} and $PM_{2.5}$ emissions.

Policy 22. Kern County shall continue to work with the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District toward air quality attainment with federal, state, and local standards.

Policy 23. The County shall continue to implement the local government control measures in coordination with the Kern COG and the San Joaquin Valley Unified Air Pollution Control District.

Policy 24. Kern County shall consult with transit providers to determine project effects and ensure that impacts are mitigated.

Implementation Measures

Implementation Measure F. All discretionary permits shall be referred to the appropriate air district for review and comment.

Implementation Measure G. Discretionary development projects involving the use of tractor trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to:

- Minimizing idling time.
- Electrical overnight plug-ins.

Implementation Measure H. Discretionary projects may use one or more of the following to reduce air quality effects:

- Pave dirt roads within the development.
- Pave outside storage areas.

- Provide additional low VOC producing trees on landscape plans.
- Use of alternative fuel fleet vehicles or hybrid vehicles.
- Use of emission-control devices on diesel equipment.
- Develop residential neighborhoods without fireplaces or with the use of EPA certified, low-emission natural-gas fireplaces.
- Provide bicycle lockers and shower facilities on-site.
- Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86).
- The use and development of park and ride facilities in outlying areas.
- Other strategies that may be recommended by the local Air Pollution Control Districts.

Implementation Measure I. Work with transit providers to develop long-range transit strategies based on future and anticipated land use plans.

Implementation Measure J. The County should include PM_{10} control measures as conditions of approval for subdivision maps, site plans, and grading permits.

Chapter 5. Energy Element

Solar Energy Development

Policies

Policy 1. The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.

Policy 3. The County should permit solar energy development in the desert and valley planning regions that do not pose significant environmental or public health and safety hazards.

Buttonwillow Community Development Plan

The following recommendations are provided with respect to air quality from the Buttonwillow Community Development Plan (Kern County 1974):

a) It is the recommendation of the Air Quality Control Section that the proposed development(s) proceed with only minimal disruption of the native soil surface within the Project site. Removal of native grasses and/or disruption of native soils will tend to increase the discharge of fugitive dust into the atmosphere.

b) It is also recommended that sufficient dust control measures be provided during any construction activity in order to control fugitive dust.

c) It is further recommended that all roads within the Project site be paved.

San Joaquin Valley Air Pollution Control District

SJVAPCD implements and maintains air quality conditions in the SJVAB through a comprehensive program of planning, regulation, enforcement, technical innovation, and promotion of the understanding of air quality issues. The clean air strategy of SJVAPCD includes preparation of plans for attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, and issuance of permits for stationary sources of air pollution. SJVAPCD also inspects stationary sources of air pollution and responds to citizen complaints; monitors ambient air quality and meteorological conditions; and implements programs and regulations required by the federal CAA and CCAA.

The SJVAPCD has developed the following plans to attain and maintain the state and federal standards:

- The 2018 Plan for the 1997, 2006, and 2012 PM2.5 Standard (SJVAPCD 2018).
- The 2016 Plan for the 2008 8-hr Ozone Standard (SJVAPCD 2016).
- The 2022 Plan for the 2015 8-hr Ozone Standard (SJVAPCD 2022).
- The 2013 Plan for the Revoked 1-hour Ozone Standard (SJVAPCD 2013).
- The 2004 Revisions to the Carbon Monoxide Maintenance Plan (CARB 2004).
- The 2007 PM10 Maintenance Plan and Request for Redesignation (SJVAPCD 2007a).
- The 2012 $PM_{2.5}$ Plan (SJVAPCD 2012).
- The 2015 Plan for the 1997 $PM_{2.5}$ Standard (SJVAPCD 2015b).
- The 2020 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone Standard (SJVAPCD 2020a).
- The 2024 Plan for the 2012 Annual $PM_{2.5}$ Standard (SJVAPCD 2024c).

SJVAPCD Rules and Regulations

Regulation I (General Provisions)

Regulation I (General Provisions) is a series of rules that establish the basic framework for interacting with the SJVAPCD including enforcement procedures, inspections, and source sampling requirements, and regulatory accountability.

Regulation II (Permits)

Rule 2010 (Permits Required) requires any person constructing, altering, replacing, or operating any source operation which emits, may emit, or may reduce emissions to obtain an Authority to Construct (ATC) or a Permit to Operate (PTO).

Rule 2092 (Standards for Permits to Operate) defines the conditions that must be met for an APCO to issue a PTO.

Rule 2201 (New and Modified Stationary Source Review Rule) requires review of new and modified stationary sources of air pollution and mechanisms including emission offsets by which ATC for such sources may be granted, without interfering with the attainment or maintenance of Ambient Air Quality Standards; and ensure that no net increase in emissions above specified thresholds from new and modified stationary sources of all nonattainment pollutants and their precursors occur.

Rule 2250 (Permit-Exempt Equipment Registration) is essentially an SJVAPCD rule designed to provide the SJVAPCD with oversight of equipment that would otherwise not require an air permit. According to the SJVAPCD's Permit-Exempt Equipment Registration (PEER) – Frequently Asked Questions document, "PEER is necessary to enforce the requirements of certain District prohibitory rules in which the emissions equipment is exempt from permitting requirements" (SJVAPCD 2008b). Section 4.5 of Rule 2250 states that the SJVAPCD shall issue the PEER within 90 days of receipt of a completed application. Sections 4.7 and 4.8 of the rule specify that a PEER unit is neither transferable between locations or owners without an application for transfer. Additionally, Rules 4702, 4307, and 4622 define different types of PEER units.

Rule 2280 (Portable Equipment Registration) provides the administrative requirements for permitting portable emissions units for operation in participating districts throughout California, starting in Sections 4.0 to 4.13 of the rule. To register portable equipment, an application must be submitted to the SJVAPCD in which operation will first occur. The Applicant must provide the SJVAPCD with all necessary emissions and engineering data to demonstrate compliance with Section 5 of this rule. Section 4.4 states that prior to issuing a permit for portable registration, the SJVAPCD will conduct an on-site inspection of the unit. There are several notification and reporting rules associated with portable equipment. Namely, Section 6.1 states that if a portable emissions unit remains at a location for more than 24 hours, the SJVAPCD must be notified within two calendar days, and Section 6.2 states that within 30 days after the end of every calendar quarter, the SJVAPCD must be provided with the level of activity (hours of operation) for the previous quarter, unless the equipment is a rental. Finally, Section 8.0 provides emissions limitation (the total NO_X, or VOCs emissions from a project shall not exceed 100 pounds during any one day, for each pollutant, and the total PM_{10} emissions from a project shall not exceed 150 pounds during any one day) and minimum distance requirements of 1,000 feet from kindergarten to 12th grade schools. The actual emissions from the unit, when operated as a registered portable emissions unit, as verified by recordkeeping as prescribed by this rule, cannot exceed 10 tons per year of any affected pollutant when operated in the SJVAPCD.

Rule 2410 (Prevention of Signification Deterioration) - Rule 2410 is triggered when obtaining construction permits for a new major stationary source and/or major modification to existing major stationary sources located in areas classified as "in attainment" or in areas that are unclassifiable for any criteria pollutant. The most important requirements in Section 4.0 of Rule 2410 are set forth in Subsection 4.1, which require that a Prevention of Significant Deterioration (PSD) permit be obtained prior to beginning any construction of a new major stationary source or a major modification to an existing major stationary source. Lastly, the SJVAPCD must follow the public notice requirements of Rule 2201 prior to issuing a federal PSD permit.

Rule 2520 (Federally Mandated Operating Permits) provides an administrative mechanism for issuing operating permits for new and modified sources of air contaminants in accordance with requirements of 40 CFR Part 70 (State Operating Permit Programs). Amended on August 15, 2019, this rule applies to: major sources of air toxics; stationary sources with the potential to emit 100 tons per year or more of any air contaminant; a source that EPA determines is required to obtain a Part 70 permit upon promulgation of a standard issued pursuant to Section 111 or 112 of the CAA; sources required by the PSD program to have a preconstruction review; solid waste incinerators subject to Sections 111 or 129 of the CAA; and any source in a source category designated by the EPA pursuant to 40 CFR Part 70.3.

Rule 2540 (Acid Rain Program) incorporates the Acid Rain Standards from Part 72, Title 40 CFR and is applicable to all stationary sources subject to Part 72, Title 40, CFR.

Rule 2550 (Federally Mandated Preconstruction Review for Major Sources of Air Toxics) applies to applications to construct or reconstruct a major air toxics source with an ATC issued on or after June 28, 1998. Section 5.0 of Rule 2550 requires the application of toxic best available control technology to new major air toxic sources and sources with the potential to emit in excess of a major air toxic source threshold. Section 6.1 requires an application for an ATC for major air toxic sources subject to the requirements of SJVAPCD Rule 2201.

Regulation III (Fees)

Regulation III sets the fees associated with owning and operating facilities, activities, and equipment that have the potential to emit air pollutants in the SJV. This rule was last amended on July 1, 2019.

Regulation IV (Prohibitions)

Rule 4001 (New Source Performance Standards [NSPS]) applies to all new sources of air pollution and modifications of existing sources of air pollution within the source categories for which EPA has adopted standards. Section 4.0, *Requirements*, of Rule 4001 lists all the provisions of 40 CFR Part 60 that are incorporated into the NSPS.

Rule 4002 (National Emission Standards for Hazardous Air Pollutants) establishes policies and procedures for implementation of 40 CFR Part 61 Subpart M – Asbestos NESHAP. The rule outlines an inspection protocol that must be followed prior to the renovation, partial demolition, or removal of a structure where the presence of ACBM has been identified. Any identified ACBM having the potential for disturbance must be removed by a certified asbestos contractor in accordance with California Occupational Safety and Health Administration (Cal/OSHA) requirements.

Rule 4101 (Visible Emissions) prohibits the emission of visible air contaminants into the atmosphere and applies to any source operation with the potential to emit air contaminants. Sections 5.0 to 5.2 require that there be no discharge from a single source of emission for a period or periods aggregating more than 3 minutes in any 1 hour that is as dark or darker than a designated

Ringelmann No. 1 rating by the U.S. Bureau of Mines, or of opacity that can obscure an observers view equal to or greater than the Ringelmann No. 1 rating.

Rule 4102 (Nuisance) applies to any source operation that emits or may emit air contaminants or other materials. In the event that the proposed Project or construction of the proposed Project creates a public nuisance, it could be in violation and be subject to SJVAPCD enforcement action.

Rule 4201 (Particulate Matter Concentration) sets a standard maximum of 0.1 grain per cubic foot of gas at dry standard conditions for PM emissions. This rule applies to any source operation that emits dust, fumes, or total suspended PM.

Rule 4202 (Particulate Matter – Emission Rate) establishes allowable emissions rates for PM. This rule requires any source operation that may emit PM emissions to meet the standards set forth in the table "Allowable Emission Rate Base on Process Weight Rate," as listed in the rule.

Regulation V (Procedure Before the Hearing Board)

Regulation V (Procedure Before the Hearing Board) establishes the procedures in which an owner/operator can approach the Hearing Board to file petitions for variances from regulations.

Regulation VI (Air Pollution Emergency Contingency Plan)

Regulation VI (Air Pollution Emergency Contingency Plan) establishes a plan of action to be taken to prevent air pollutant concentration from reaching levels that could endanger the public health or to abate such concentrations should they occur.

Regulation VII (Toxic Air Pollutants)

Rule 7050 (Asbestos - Containing Material for Surfacing Applications). The purpose of this rule is to control airborne emissions of asbestos-containing rock. Compliance schedule, recordkeeping, and test methods are specified. This rule incorporates provisions of CCR Section 93106.

Regulation VIII (Fugitive PM_{10} Prohibitions)

Regulation VIII (Fugitive PM_{10} Prohibitions) is a series of rules to reduce ambient concentrations of PM_{10} by requiring actions to prevent, reduce, or mitigate anthropogenic fugitive dust emissions.

Rule 8021 (Construction, Demolition Excavation, Extraction, and Other Earth-moving Activities) limits fugitive dust emissions from construction, demolition, excavation, extraction, and other earth-moving activities and applies to any construction, demolition, excavation, extraction, and other earth-moving activities, including, but not limited to, land clearing, grubbing, scraping, travel on-site, and travel on access roads to and from the site.

Rule 8031 (Bulk Materials) limits fugitive dust emissions from the outdoor handling, storage, and transport of bulk materials.

Rule 8041 (Carryout and Trackout) prevents or limits fugitive dust emissions from carryout and trackout and applies to all sites that are subject to any of the following rules where carryout or trackout has occurred or may occur on paved public roads or the paved shoulders of a paved public road.

Rule 8051 (Open Areas) limits fugitive dust emissions from open areas and applies to any open area having 0.5 acre or more within urban areas, or 3.0 acres or more within rural areas, and contains at least 1,000 square feet of disturbed surface area.

Rule 8061 (Paved and Unpaved Roads) limits fugitive dust emissions from paved and unpaved roads by implementing control measures and design criteria.

Rule 8071 (Unpaved Vehicle/Equipment Traffic Areas) limits fugitive dust emissions from unpaved vehicle and equipment traffic areas.

Regulation IX (Mobile and Indirect Sources)

Rule 9410 (Employer-Based Trip Reduction) reduces vehicle miles traveled from private vehicles used by employees to commute to and from their worksites to reduce emissions of NO_X, VOC, and PM.

Rule 9510 (Indirect Source Review). Indirect sources are land uses that attract or generate motor vehicles trips. Indirect source emissions contain many pollutants, principally PM_{10}, ROG, and NO_X. The SJVAPCD first implemented this requirement in the adopted 2003 PM_{10} Plan to develop and implement an Indirect Source Rule (ISR) by July 2004, with implementation to begin in 2005. Senate Bill 709 (SB 709) required the SJVAPCD to adopt by regulation a schedule of fees to be assessed on areawide and indirect sources of emissions. After public hearings, the SJVAPCD adopted Rule 9510 on December 15, 2005, which became effective in 2006. This rule was amended on December 21, 2017, and the amendments became effective on March 21, 2018.

The purpose of Rule 9510 is to reduce emissions of NO_X and PM_{10} from new development projects. The SJVAPCD determined that reducing one precursor NO_X, would reduce the cumulative impact of ozone from new development to less than significant levels. Sufficient ROG was obtained from other control measures to enable the SJVAPCD to predict attainment without additional ROG controls. The rule applies to development projects that seek to gain a discretionary approval for projects that, upon full buildout, will include any one of the following: 50 residential units; 2,000 square feet of commercial space; 25,000 square feet of light industrial space; 20,000 square feet of medical or recreational space; 39,000 square feet of general office space; 100,000 square feet of heavy industrial space; 9,000 square feet of educational space; 10,000 square feet of government space; or 9,000 square feet of any land use not identified above. Several sources are exempt from the rule, including transportation projects, transit projects, reconstruction projects that result from a natural disaster, and development projects whose primary source of emissions are subject to SJVAPCD Rules 2201 and 2010, which address stationary sources. Any development project that has a mitigated baseline of less than 2 tons per year for each NO_X and PM_{10} is exempted from the mitigation requirements of the rule. Developers are encouraged to reduce as much air pollution as possible through on-site mitigation or incorporating air-friendly

designs and practices into the proposed Project. Some examples include bike paths and sidewalks; traditional street design; medium- to high-density residential developments; locating near bus stops and bike paths; locating near different land use zones, such as commercial; and increasing energy efficiency. If these practices do not completely meet the required reductions, then new development projects are required to mitigate the remainder of their emissions by contributing to a mitigation fund that would be used to pay for the most cost-effective projects to reduce emissions. Examples of such projects include retirement and crushing of gross polluting cars, replacement of older diesel engines, and diesel-powered vehicles and programs that would encourage the replacement of gas-powered lawn mowers with electric lawn mowers.

The ISR requires developers to reduce 20 percent of construction-exhaust NO_X, 45 percent of construction-exhaust PM_{10}, 33 percent of operational NO_X over 10 years, and 50 percent of operational PM_{10} over 10 years. The SJVAPCD estimates that the potential reductions from this program in 2010 at 11.5 tons per day, or 4,197.5 tons per year, of PM_{10} and 4.1 tons per day, or 1,496.5 tons per year, of NO_X.

Emission Reduction Agreements

The implementation, as mitigation, of a Development Mitigation Agreement or Voluntary Emission Reduction Agreement (VERA) to reduce criteria pollutants of NO_X, ROGs, and PM net incremental emissions generated by a project has been incorporated into development projects in Kern County since 2008. They are not a "voluntary" agreement with the SJVAPCD but are mandated by enforceable mitigation measures and are, therefore, called Development Mitigation Agreement (DMA). The emission reductions required by a DMA are implemented within the SJVAB in quantities sufficient to fully mitigate the proposed Project's air quality impacts such that development of the proposed Project could be considered to result in no net increase in the designated criteria pollutant emissions over the criteria pollutant emissions that would otherwise exist without the development of the proposed Project, all to be verified by the SJVAPCD. Thus, the DMA results in greater reductions than would otherwise occur under the SJVAPCD's ISR, since the ISR does not require ROG reductions and the ISR only requires a percentage of reductions rather than full reductions of NO_X and PM resulting from proposed Project construction and operations. When adopting the ISR and the subsequent VERA/DMA programs, the SJVAPCD acknowledges that as ROG is a precursor to ozone, the reductions are not required in the ISR. In the VERA/DMA, the reductions are achieved by increasing the NO_X and PM tonnage for proposed Project levels (SJVAPCD 2005).

Local Control Measures

The SJVAPCD requires all local governments within its eight-county jurisdiction to adopt resolutions as part of the Ozone Attainment Demonstration Plan that must be approved by EPA. The resolutions describe the reasonably available control measures that each jurisdiction will implement to reduce ozone-causing emissions into the air from transportation sources. Local jurisdictions are also required to adopt best available control technology measures to reduce particle emissions as part of the PM_{10} Area Attainment Demonstration Plan. This process is coordinated and assisted by regional transportation planning agencies, such as the Kern COG.

The Kern County Board of Supervisors adopted a resolution on March 12, 2002, that committed the County to implementing several measures to reduce ozone-causing emissions. Among the measures are cost incentives for road contractors to minimize land closures, transit-oriented land use planning, and measures to encourage County employees and other motorists to restrict driving on days with high ozone levels as well as continuing efforts to convert county vehicles to low-emission compressed natural gas and gasoline/electric hybrid engines. Many of these measures have been incorporated as general plan policies.

The Kern County Board of Supervisors adopted a resolution on January 7, 2003, that committed the County to implement several measures aimed at reducing PM_{10} emissions from county roadways. Among the measures are: plans to determine the feasibility of paving the county's unpaved roads, which are lightly traveled; paving the shoulders of the most heavily traveled paved county roads as funding allows; and purchasing two PM_{10}-compliant street sweepers as funding allows. The resolution also committed the County to: imposing tougher rules for canceling road improvements on large rural parcels; requiring public and private access roads for new commercial and industrial development to be paved; evaluating the adverse air quality impacts of new development and, where appropriate, requiring mitigation measures; and implementing policies that require developers to control and abate dust during grading and construction operations, obtain a permit for an expansion or significant alteration of a use, and pave parking and storage areas for commercial and agricultural operations. These measures are being implemented through the Kern County Land Division Ordinance, Kern County Zoning Ordinance (Zoning Ordinance), and in the approved General Plan.

Air Quality Plans

The SJVAPCD has developed plans to attain state and federal standards for ozone and PM. The SJVAPCD's attainment plans are subject to approval by the SJVAPCD's Governing Board and:

- Include emissions inventories, to identify the sources and quantities of air pollutants, to evaluate how well different control methods have worked, and to demonstrate how air pollution will be reduced;
- Provide projected changes in population, vehicles, fuels and equipment, and associated emissions;
- Identify existing rules and additional proposed measures required to reduce emissions to the ambient air quality standards. These rules and proposed measures include requirements to obtain permits to construct and operate, and rules regulating the allowable emissions from various activities or classes of equipment; and
- Use computer modeling to estimate future levels of pollution and make sure that the SJV will meet air quality goals.

One-Hour Ozone Plan

CARB submitted the 2004 Extreme Ozone Attainment Demonstration Plan to the EPA on November 15, 2004. The plan was amended by the SJVAPCD in 2008. Effective June 15, 2005,

the EPA revoked the federal 1-hour ozone ambient air quality standard, finding that the 8-hour ozone standard was more health protective and adopted anti-backsliding provisions to preserve existing 1-hour ozone control measure and emissions reductions obligations; this delayed EPA action on the SJVAPCD's 2004 Plan until 2010. The SJVAPCD implemented the 2004 plan's control measures and emissions reductions strategies, and the SJV must still attain the revoked standard before it can rescind the CAA Section 185 fees collected under Rule 3170.

In 2012, the EPA withdrew its 2010 approval of the SJVAPCD's 2004 Plan and required submittal of a new plan for the revoked 1-hour standard that includes the following:

- A Rate of Progress demonstration
- Contingency measures for Rate of Progress and for attainment
- An attainment demonstration
- A demonstration for Reasonably Available Control Measures
- A demonstration for clean fuels/clean technologies are in place for boilers
- A vehicle miles traveled offset demonstration

The SJVAPCD's Governing Board adopted the 2013 Plan for the Revoked 1-Hour Ozone Standard in September 2013, thereby fulfilling air quality planning requirements under the federal CAA for the Revoked 1-Hour Ozone Standard. The SJVAPCD Governing Board also requested the EPA to set 2017 as the attainment date for the revoked 1-hour ozone NAAQS, adopted in 1979.

On July 13, 2015, the SJVAPCD submitted a second formal request that the EPA determine that the SJV has attained the federal 1-hour ozone standard, allowing nonattainment penalties to be lifted under federal CAA Section 179B.

On July 18, 2016, the EPA published in the Federal Register a final action determining that the SJV has attained the 1-hour ozone NAAQS. This determination was based on the most recent three-year period (2012 to 2014) of sufficient, quality-assured, and certified data (SJVAPCD n.d.b).

Eight-Hour Ozone Plan

In June 2016, the SJVAPCD adopted the 2016 Plan, addressing the federal mandates related to the 2008 8-hour ozone NAAQS. The 2016 Ozone Plan sets out the strategy to attain the 75 parts per billion (ppb) standard by 2031, ensuring expeditious attainment of the CAA. This requires another 207.7 tons per day in NO_X reductions from stationary and mobile sources throughout the SJV. The measures identified in this plan were designed to achieve the necessary reductions (SJVAPCD 2016).

CARB approved the plan on July 21, 2016. In response to court decisions, some elements included in the 2016 Ozone Plan required updates. CARB staff prepared the 2018 Updates to the California SIP (2018 SIP Update) to update SIP elements for nonattainment areas throughout the state as needed. CARB adopted the 2018 SIP Update on October 25, 2018 (CARB 2019). In December

2022, the SJVAPCD adopted the 2022 Plan, addressing the federal mandates related to the 2008 8-hour ozone NAAQS. The 2022 Ozone Plan sets out the strategy to attain the 75 ppb standard by 2037 (SJVACPD 2022). The plan has been submitted to CARB for approval.

PM_{10} Maintenance Plan

Based on PM10 measurements from 2003 to 2006, the EPA found that the SJVAB has reached federal PM10 standards. On September 21, 2007, the SJVAPCD adopted the 2007 PM10 Maintenance Plan and Request for Redesignation. This plan demonstrates that the SJV will continue to meet the PM10 standard. The EPA approved the document and on September 25, 2008, the SJVAB was redesignated to attainment for PM10 NAAQS.

2008 $PM_{2.5}$ Plan

The SJVAB is designated nonattainment for federal $PM_{2.5}$ standards. The EPA set their first $PM_{2.5}$ standards in 1997, and they strengthened the 24-hour standard in 2006. The SJVAPCD's Governing Board adopted the 2008 $PM_{2.5}$ Plan on April 30, 2008. The plan estimated that the SJVAB would reach the $PM_{2.5}$ standard by 2014. CARB approved the Plan on May 22, 2008. The EPA approved most provisions of the 2008 $PM_{2.5}$ Plan effective January 9, 2012.

2012 $PM_{2.5}$ Plan

The SJVAPCD adopted the 2012 $PM_{2.5}$ Plan on December 20, 2012. The plan demonstrated that the SJVAB would achieve the 2006 24-hour $PM_{2.5}$ NAAQS of 35 micrograms per cubic meter ($\mu g/m^3$) by 2019. CARB approved the SJVAPCD's 2012 $PM_{2.5}$ Plan in January 2013. The EPA approved most provisions of the 2012 $PM_{2.5}$ Plan effective August 31, 2016.

2015 $PM_{2.5}$ Plan

The SJVAPCD adopted the 2015 $PM_{2.5}$ Plan for the 1997 $PM_{2.5}$ standard in April 2015. While nearly achieving the 1997 standards by 2014, as predicted in the 2008 $PM_{2.5}$ Plan, the SJVAB experienced higher $PM_{2.5}$ levels in winter 2013 to 2014 due to the extreme drought, stagnation, strong inversions, and historically dry conditions; thus, the SJVAB was unable to meet the attainment date of December 31, 2015. Accordingly, the plan asked for a one-time extension of the attainment deadline for the 24-hour standard to 2018 and the annual standard to 2020.

The 2015 $PM_{2.5}$ Plan builds on past development and implementation of effective control strategies and, consistent with EPA regulations for $PM_{2.5}$, planned to achieve the 1997 standard as expeditiously as possible. The plan contains Most Stringent Measures, Best Available Control Measures, and additional enforceable commitments to further reduce emissions to ensure expeditious attainment of the 1997 standard.

The EPA formally proposed to approve portions of the 2015 $PM_{2.5}$ Plan and the attainment date extension on February 9, 2016. The EPA needed to finalize its approval of the SJVAPCD's attainment date extension by July 2016, but the EPA failed to finalize this action. The EPA subsequently denied the SJVAPCD's attainment extension request on the basis that they did not

have enough information to act and found that the SJVAPCD failed to attain the 1997 standard by its December 2015 attainment deadline. The EPA's action was effective December 23, 2016.

2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard

The SJVAPCD adopted the 2016 Moderate Area Plan for the 2012 $PM_{2.5}$ Standard on September 15, 2016. This plan addresses the EPA federal annual $PM_{2.5}$ standard of 12 μg/m³, established in 2012. This plan includes an attainment impracticability demonstration and request for reclassification of the SJVAB from moderate nonattainment to serious nonattainment.

2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards

The SJVAPCD adopted the 2018 Plan for the 1997, 2006, and 2012 $PM_{2.5}$ Standards on November 15, 2018. This plan addresses the EPA federal 1997 annual $PM_{2.5}$ standard of 15 μg/m³ and 24-hour $PM_{2.5}$ standard of 65 μg/m³; the 2006 24-hour $PM_{2.5}$ standard of 35 μg/m³; and the 2012 annual $PM_{2.5}$ standard of 12 μg/m³. The plan demonstrates attainment of the $PM_{2.5}$ standards, as expeditiously as possible, with estimates that the EPA federal 1997 annual $PM_{2.5}$ standard of 15 μg/m³ and 24-hour $PM_{2.5}$ standard of 65 μg/m³ will be attained by 2020, the 2006 24-hour $PM_{2.5}$ standard of 35 μg/m³ will be attained by 2024, and the 2012 annual $PM_{2.5}$ standard of 12 μg/m³ will be attained by 2025. CARB approved the SJVAPCD's 2018 $PM_{2.5}$ Plan in January 2019. The Plan is currently being considered for approval by the EPA.

The SJVAPCD attainment strategy builds on comprehensive strategies already in place from previously adopted attainment plans and measures. The SJVAPCD's multifaceted approach to reducing emissions in the SJVAB for this Plan consists of a combination of innovative regulatory and nonregulatory measures (SJVAPCD 2018).

As of 2016, the SJVAPCD's Bakersfield, Visalia, Fresno, and Stockton $PM_{2.5}$ monitoring sites have all achieved the EPA 24-hour $PM_{2.5}$ standard of 65 μg/m³ (CARB 2019). However, as explained in **Table 4.3-2:** *Attainment Status for the San Joaquin Valley Air Pollution Control District*, the SJVAPCD remains in nonattainment status for $PM_{2.5}$ and further reductions are needed to meet the federal 1997 annual $PM_{2.5}$ standard of 15 μg/m³, the 2006 24-hour $PM_{2.5}$ standard of 35 μg/m³ and the 2012 annual $PM_{2.5}$ standard of 12 μg/m³.

Air Quality Conformity Determination for Transportation Plans and Programs

The CAA Amendments of 1990 require a finding to be made stating that any project, program, or plan subject to approval by a metropolitan planning organization conforms to air plans for attainment of air quality standards. Kern COG is designated as the Regional Transportation Planning Agency and Metropolitan Planning Organization for Kern County. In that capacity, Kern COG models air quality projections on population projections in conjunction with current general plan designations and estimated vehicle miles as well as the current Regional Transportation Plan (RTP) and the federal transportation plan for Kern County finalized in 2022. Kern County is contained within two air basins: the SJVAB and the Mojave Desert Air Basin. Each air basin has its own plans and pollutant budgets. Kern COG makes conformity findings for each air basin. The Federal Transportation Improvement Program (FTIP) for the Kern County region is a six-year

schedule of multimodal transportation improvements, and the RTP is a long-range, 24-year transportation and sustainability plan.

The Conformity Analysis for the 2025 FTIP and 2022 RTP was adopted by Kern COG July 18, 2024, and state and federal approval is still pending. The Conformity Analysis for the 2023 FTIP and 2022 RTP was adopted by Kern COG November 16, 2022, and approved by the Federal Highway Administration and the Federal Transit Administration on December 16, 2022. The approved regional emissions analysis was conducted for years ranging from 2022 to 2046 for analysis years applicable to each pollutant. The conformity findings conclude that the FTIP and RTP result in emissions that are less than the emission budgets of baseline emissions or approved trading mechanisms for transportation conformity purposes for CO, VOC, NO_X, $PM_{10,}$ and $PM_{2.5}$ (FHWA 2022).

Guide for Assessing and Mitigating Air Quality Impacts/Air Quality Thresholds of Significance

In August 1998, the SJVAPCD adopted the *Guide for Assessing and Mitigating Air Quality Impacts* (GAMAQI) to provide lead agencies, consultants, and project applicants with uniform procedures for addressing air quality in environmental documents. The SJVAPCD subsequently revised its GAMAQI document in January 2002 (SJVAPCD 2002). In 2012, the SJVAPCD began the process to update its GAMAQI document. The update was intended to codify long-standing district practices, provide updated data, revise recommended significance thresholds, and provide additional technical guidance. The May 2012 Draft GAMAQI is more environmentally protective than the January 2002 GAMAQI. In March 2015, the SJVAPCD again updated the GAMAQI. This document utilizes the significance thresholds recommended in its March 2015 Final GAMAQI (SJVAPCD 2015a).

In December 2006, the Kern County Planning and Natural Resources Department (KCPNRD) issued its own *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* (Kern County Air Quality Assessment Guidelines). The document provided specific guidance for County-prepared environmental impact reports, including air quality issues to be considered, analytical approaches and resources, a significance threshold for PM_{10} (which was not reflected in the January 2002 GAMAQI, but is included in the March 2015 Final GAMAQI), and a cumulative impact analysis methodology (KCPD 2006). This analysis also utilizes the analytical approach and issues recommended in the KCPNRD's Guidelines.

SJVAPCD provides the following guidance for evaluation of cumulative impacts in the March 2015 GAMAQI (Section 7.14):

> *By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development. Future attainment of State and Federal ambient air quality standards is a function of successful implementation of the SJVAPCD's attainment plans. Consequently, the SJVAPCD's application of thresholds of significance for criteria pollutants is relevant to the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality.*
>
> *A lead agency may determine that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program, including, but not limited to an air quality attainment or maintenance plan that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located [CCR § 15064(h)(1)].*
>
> *Thus, if project-specific emissions would be less than the thresholds of significance for criteria pollutants, as a general matter the project would not be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the SJVAPCD is in nonattainment under applicable Federal or State ambient air quality standards.*

The SJVAPCD March 2015 GAMAQI (Section 8.8.4) also states:

> *As discussed in Section 8.3.1 (Basis for Air Quality Thresholds of Significance)* [of the GAMAQI]*, the SJVAPCD's thresholds of significance for criteria pollutants are based on District rule 2201 (New Source Review) offset requirements. Furthermore, New Source Review (NSR) is a major component of the SJVAPCD's attainment strategy. NSR provides mechanisms, including emission trade-offs, by which Authorities to Construct such sources may be granted, without interfering with the attainment or maintenance of Ambient Air Quality Standards. District implementation of NSR ensures that there is no net increase in emissions above specified thresholds from new and modified Stationary Sources for all nonattainment pollutants and their precursors. In fact, permitted emissions above offset thresholds equivalent to the SJVAPCD's thresholds of significance for criteria pollutants are mitigated to below the thresholds, and the SJVAPCD's attainment plans show that this level of emissions increase will not interfere with attainment or maintenance of ambient air quality standards.*
>
> *The District's attainment plans demonstrate that project-specific net emissions increase below NSR offset requirements will not prevent the SJVAPCD from achieving attainment. Consequently, emission impacts from sources permitted consistent with NSR requirements are not individually significant and are not cumulatively significant.*

Criteria Pollutant Emissions

Table 4.3-6: *Criteria Pollutant Emissions Significance Thresholds (tons per year)*, presents the SJVAPCD's criteria pollutant emissions significance thresholds for construction and project operation, based on the SJVAPCD's Final March 2015 GAMAQI. As shown in **Table 4.3-6:** *Criteria Pollutant Emissions Significance Thresholds (tons per year)*, the SJVAPCD recommends that emissions from permitted sources and activities be evaluated separately from non-permitted sources and activities.

Table 4.3-6: Criteria Pollutant Emissions Significance Thresholds (tons per year)

Pollutant/ Precursor	Construction Emissions	Operational Emissions	
		Permitted Sources and Activities	Non-Permitted Sources and Activities
ROG	10	10	10
NO_X	10	10	10
CO	100	100	100
SO_X	27	27	27
PM_{10}	15	15	15
$PM_{2.5}$	15	15	15

Source: SJVAPCD 2015a, Section 8.3

Key: CO = carbon monoxide; NO_X = oxides of nitrogen; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns; ROG = reactive organic gases; SO_X =

As indicated in the 2015 GAMAQI, permitted sources and activities are subject to SJVAPCD Regulation II (Permits), notably Rule 2201 (New and Modified Stationary Source Review) and Rule 2301 (Emission Reduction Credit Banking). Rule 2201 requires that any emission increases from new permitted stationary sources are mitigated by emission trade-offs, which can include Emission Reduction Credits (ERCs), emission reductions due to control measures, or other decreases in emissions at a facility site (for example, shutting down other equipment). In most cases, permitted stationary-source emissions, therefore, will be reduced or mitigated to below the SJVAPCD's recommended significance thresholds (SJVAPCD 2015a, Section 8.2.1).

While CARB recently performed an audit of the SJVAPCD ERC Banking Program, CARB did not overturn the program (CARB 2020a, 2020b). Subsequently, the SJVAPCD Board-approved staff recommendations to remove Ag-ICE projects from the NO_X ERC equivalency system and to remove orphan shutdown projects from the VOC ERC equivalency system, effective September 17, 2020 (SJVAPCD 2020b). This action means that the SJVAPCD cannot demonstrate federal equivalency with the surplus value test for NO_X and VOC and thus any new major source or federal major modification triggering NO_X or VOC offsets under Rule 2201 will require "surplus at time of use" ERCs, which means ERCs must be demonstrated to be surplus at the time an ATC is issued, rather than when the emission reductions began. This process will remain in place until such time that equivalency with the federal program is again demonstrated by the SJVAPCD. This step by the SJVAPCD thus restricts the allowable number of ERCs that are valid for use as offsets in the

SJV but does not change the way that ERCs are used, nor does it change permitting requirements under Rule 2201. Thus, permitted stationary sources will only be allowed to move forward and be permitted by the SJVAPCD if emissions are properly offset and if the SJVAPCD approves an ATC, as required by Rule 2201. Therefore, it is reasonable to assume that permitted stationary-source emissions will continue to be offset under SJVAPCD rules and reduced or mitigated to below SJVAPCD's recommended significance thresholds.

Odors

The SJVAPCD recommends that lead agencies assess odor significance based on a review of SJVAPCD complaint records. For a project located near an existing source of odors, the impact is potentially significant when the project site is at least as close as any other site that has already experienced significant odor problems related to the odor source. Significant odor problems are defined as:

- More than one confirmed complaint per year averaged over a three-year period; or
- Three unconfirmed complaints per year averaged over a three-year period.

A complaint is deemed unconfirmed if the odor/air contaminant release could not be detected, or the source/facility cannot be determined.

The Kern County Air Quality Assessment Guidelines recommend dispersion modeling of maximum 24–hour average concentrations of odorous compounds at the project boundary and within a 6-mile limit to determine ambient concentrations at nearby sensitive receptors (for example, residences and schools), including approved, but not constructed, sensitive receptors. Ambient concentrations at such receptors should be compared to odor thresholds and CEQA impact thresholds to determine potential odor impacts.

Air Toxic Program

In the context of TACs, to meet the requirements of federal and state law, the SJVAPCD has created an Integrated Air Toxic Program. This program serves as a tool for implementation of the requirements outlined in Title III of the 1990 CAA Amendments and the TAC-related requirements of state law and SJVAPCD regulations. The goals of SJVAPCD risk management efforts are to: (1) minimize increases in toxic emissions associated with new and modified sources of air pollution; and (2) ensure that new and modified sources of air pollution do not pose unacceptable health risks at nearby residences and businesses.

To achieve these goals, the SJVAPCD reviews the risk associated with each permitting action where there is an increase in emissions of TACs. SJVAPCD staff, as part of the engineering evaluation for these projects, performs this risk management review. The risk management review is performed concurrently with other project review functions necessary to process permit applications with the SJVAPCD.

Under the SJVAPCD's risk management policy, toxic best available control technology must be applied to all units that, based on their potential emissions, may pose greater than de minimis risks.

Facilities that pose health risks above SJVAPCD action levels are required to submit plans to reduce their risk. Action levels for risk were established in the SJVAPCD's Board-Approved Health-Risk Reduction Strategy (HRRS). The action level for cancer risk was 10 cases per 1 million exposed persons, based on the maximum exposure beyond facility boundaries at a residence or business. Following changes to the State Health Risk Assessment (HRA) Guidelines (discussed in Impact 4.3-4, below), the SJVAPCD changed its cancer risk action level to 20 per 1 million in a policy dated May 28, 2015 (APR-1906 "Framework for Performing Health Risk Assessments"). The action level for noncancer risk is a hazard index of 1.0 at any point beyond the facility boundary where a person could reasonably experience exposure to such risk.

SJVAPCD Health-Risk Reduction Strategy

In 2010, the SJVAPCD Governing Board adopted the Risk-Based Strategy, which focuses on measures that address the pollutants for which the SJV is working toward attainment: ozone and fine PM. This strategy is also gaining widespread support by the EPA and the scientific community. In May 2013, the SJVAPCD renamed its Risk-Based Strategy as the HRRS.

Driven by a rapidly expanding body of scientific research, there is now a growing recognition within the scientific community that from an exposure perspective, the NAAQS metrics for progress are a necessary, but increasingly insufficient, measure of total public health risk associated with air pollutants. In particular, control strategies for sources of $PM_{2.5}$ and ozone do not necessarily account for qualitative differences in the nature of their emissions. For $PM_{2.5}$, toxicity has been shown to vary depending on particle size, chemical species, and surface area. In the case of ozone, differences in the relative potency of ozone precursors, VOCs in particular, are not captured by aAPR strict, mass-based approach to precursor controls. Thus, while the NAAQS and SIP process is motivated by public health, the process set forward under the CAA does not guarantee that the public health benefits of control strategies will be maximized.

The HRRS applies to regulatory, incentive, and outreach strategies and recognizes that risk to the public is not always proportional to the mass rate of emissions based on factors such as:

- Ultrafine particles versus coarse particles;
- Toxicity/carcinogens;
- Intake fraction/deposition fraction;
- NO_X versus VOCs;
- NO_X versus ammonia reductions; and
- Photochemical reactivity of VOCs.

The HRRS does not establish a new acceptable risk level, delay attainment of mass-based air quality standards, or ask for a change in the form of the mass-based air quality standards. Instead, it describes how to determine the potential risk to public health from a particular project.

SJVAPCD Policy Air Permitting Review 1905

In Policy Air Permitting Review (APR) 1905, the SJVAPCD establishes three stages for risk evaluation for all projects resulting in increases in hourly, daily, or annual potential to emit TAC from new and modified sources, except projects specifically exempted in approved SJVAPCD permitting policies. The stages are as follows.

A. Prioritization

Projects shall be prioritized using the California Air Pollution Control Officers Association Facility Prioritization Guidelines. A prioritization score is used for determining the applicability of toxic best available control technology to each new and modified emissions units and the need for a detailed HRA.

B. Health Risk Assessment

Projects with cumulative increases in prioritization score of greater than one require an HRA using the OEHHA Guidelines.

C. Calculation of Increase in Permitted Emissions

Increase is determined as the difference between the baseline and proposed potential to emit for the pollutant. APR 1905 specifies that the SJVAPCD policy defining certain small increases of criteria pollutant emissions as zero does not apply to TACs.

4.3.4 Impacts and Mitigation Measures

Methodology

This section discusses the methodologies used to conduct the evaluation of air quality impacts for the proposed Project, including guidelines for preparing environmental documents under CEQA and technical methods employed in the evaluation. The air quality significance criteria were developed considering the SJVAPCD's CEQA significance criteria, approved CEQA air quality checklists, and federal criteria.

The analysis presented within this section is based on qualitative and quantitative approaches for determining air quality impacts associated with construction, operation, and maintenance of the proposed Project. The baseline for purposes of this analysis is the physical environmental conditions existing as of the beginning of the air quality analysis (2022). The change in the environment caused by the proposed Project results from construction and from operation of the solar facility and associated infrastructure.

The findings in the *Air Quality, Greenhouse Gas Emissions, and Energy Technical Report* prepared for the proposed Project (located in Appendix C.2 of this Draft EIR) were used to assess the proposed Project's impacts related to air quality. Additional details regarding data and assumptions used for estimating emissions, including California Emissions Estimator Model (CalEEMod)

inputs and outputs, can also be found in Appendix C.2: *Air Quality, Greenhouse Gas Emissions, and Energy Technical Report*.

Air Quality Plan Consistency

As a component of the cumulative impact analysis, the County Air Quality Assessment guidance (Kern County 2006) states that the following should be included in the consistency determination for existing air quality plans:

- Discuss project in relation to Kern COG conformity and traffic analysis zones (TAZs)
- Quantify the emissions from similar projects in the Ozone Attainment Plan for the applicable basin. Discuss the Ozone Attainment Plan for the applicable air district, development, and relation to regional basin, Triennial Plan, and SIP

Pollutant Emissions

The construction and operational emissions were estimated using the CalEEMod Version 2022.1.1.29. Construction and operational emissions were estimated using Project-specific data and schedules within the models.

Construction Emissions

Emissions from the construction phase of the proposed Project were estimated using CalEEMod Version 2022.1.1.29 (Appendix C.2). Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by the Project proponent and CalEEMod default values when proposed Project specifics were not known.

For purposes of estimating the proposed Project emissions, and based on information provided by the Project proponent, it was assumed that construction of the proposed Project would commence as early as July 2025 and would last approximately 60 months, ending in June 2030. The analysis contained herein is based on the following assumptions (duration of phases is approximate):

- Site Preparation: July 2025–April 2026
- Tracker Foundations: April 2026–March 2027
- Underground Cabling: March 2027–February 2028
- Mechanical Installation: February 2028–March 2029
- Electrical Installation: March 2029–June 2030

The construction schedules utilized in the analysis represent a "worst-case" analysis scenario because emissions from construction equipment typically decrease and fuel efficiency typically increases over time due to improvements in technology and more stringent regulatory requirements. Construction equipment emission factors contained in CalEEMod Version 2022.1.1.29 decrease over time, reflecting these trends. Therefore, the construction emissions would be less if the construction schedule was adjusted to occur in later years.

Grading would be balanced on-site. For vendor and haul trucks it was assumed that there would be 0.25 miles of unpaved road travel per trip. Workers were assumed to park in a staging area (compacted soil) and travel 18 miles from Bakersfield, which is the nearest employment center, to the Project site. Water trucks are included in the vendor truck category and were modeled with the default trip length of 7.37 miles (to account for on-site travel). Solar construction was stated to require a maximum of 1,000 acre-feet of water per year, which translates to 252 one-way water-truck trips per day of solar construction. All material deliveries are included in the haul truck category and are assumed to travel 66 miles from the edge of the SJVAB.

Construction emissions of the proposed Project were estimated in CalEEMod based on construction schedule beginning in July 2025, lasting approximately 60 months, ending in June 2030. The CalEEMod equipment list was updated to reflect the list of proposed construction equipment and schedule that was provided by the Project proponent.

The proposed solar equipment is estimated to have a lifespan of over 35 years with regular maintenance. Upon completion of the proposed Project's operational term, the Project operator may, at its discretion, continue to generate and sell power from the proposed Project, or decommission and remove the system and its components. For purposes of estimating proposed Project decommissioning emissions, it is assumed that activity would commence in January 2061 and would last approximately 25 months. However, CalEEMod does not have emission factors beyond 2050. As such, for modeling purposes, year 2050 was assumed for the end of decommissioning.

Operational Emissions

Emissions from the operational phase of the proposed Project were estimated using CalEEMod Version 2022.1.1.29. Operational year 2030 was assumed consistent with completion of project construction. CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use, architectural coatings, landscape maintenance equipment, building electricity use, worker commute vehicles, and delivery vehicles.

Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use, architectural coatings, and landscape maintenance equipment.

Consumer products are chemically formulated products used by household and institutional consumers, including: detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. Other paint products, furniture coatings, or architectural coatings are not considered consumer products (CAPCOA 2022). Consumer product ROG emissions are estimated in CalEEMod based on the floor area of nonresidential buildings and on the default factor of pounds of ROG per building square foot per day. For parking lot land uses, CalEEMod estimates ROG emissions associated with use of parking surface degreasers based on a square footage of parking surface area and pounds of ROG per square foot per day.

VOC off-gassing emissions result from evaporation of solvents contained in surface coatings, such as in paints and primers used during building maintenance. CalEEMod calculates the VOC evaporative emissions from the application of surface coatings based on the VOC emission factor, the building square footage, the assumed fraction of surface area, and the reapplication rate. The VOC emissions factor is based on the VOC content of the surface coatings, and SJVAPCD Rule 4601, Architectural Coatings, governs the VOC content for interior and exterior coatings. This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories. Based on the limits in Rule 4601 of 50 grams per liter (g/L) VOC content for flat and nonflat coatings, 50g/L VOC content was assumed for all coatings used in the proposed Project. CalEEMod default values were assumed for the surface area to be painted, and the reapplication rate to be 10 percent of area per year.

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers. The emissions associated with landscape equipment use were estimated based on CalEEMod default values for emission factors (grams per square foot of building space per day) and the number of summer days (when landscape maintenance would generally be performed) and winter days.

Energy Sources

As represented in CalEEMod, Project energy sources include emissions associated with building electricity for the operation and maintenance (O&M) buildings along with the emergency backup generators. Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for greenhouse gases in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off-site. The O&M buildings are designed as all-electric; as such, no natural gas will be consumed during operation.

CalEEMod default values for energy consumption for each land use were applied for the project analysis. The energy use from nonresidential land uses is calculated in CalEEMod based on the Commercial Appliance Saturation Study (CAPCOA 2022). CalEEMod assumes compliance with the 2019 Title 24 building code standards.

Mobile Sources

The proposed Project would generate air quality emissions from mobile sources (vehicular traffic) as a result of employee commute trips. The proposed Project is anticipated to have up to 20 permanent employees in the O&M building. CalEEMod was used to estimate emissions from proposed vehicular sources. It was also conservatively assumed that the proposed Project would receive nine delivery trucks per day. CalEEMod default data, trip length, trip modes, fleet mix, and emissions factors were used for the model inputs. CalEEMod default vehicle emission factors and vehicle fleet mix for 2030 were used to estimate emissions associated with vehicular sources.

GAMAQI recommends that lead agencies consider situations wherein a new or modified source of TACs s is proposed for a location near an existing residential area or other sensitive receptor when

evaluating potential impacts related to TACs. The proposed Project would result in new TAC emissions of DPM from construction equipment exhaust, and construction and operational commute vehicle and truck travel. Therefore, an assessment of the potential risk to the population attributable to emissions of TACs from the proposed Project is required.

Health Risk Assessment

To predict the potential health risk to the population attributable to emissions of TACs from construction of the proposed Project, ambient air concentrations were predicted with dispersion modeling to arrive at a conservative estimate of increased individual carcinogenic risk and noncancerous health risk that might occur as a result of continuous exposure over a 60 month construction period. Health risk was determined using EPA's AERMOD dispersion model, CARB's Hot-spots Analysis Reporting Program (HARP2), following guidance from the California EPA OEHHA, as detailed in the Final Air Quality, Greenhouse Gas Emissions, and Energy Technical Report.

For risk assessment purposes, PM10 in diesel exhaust is considered DPM, originating mainly from off-road equipment operating at a defined location for a given length of time at a given distance from sensitive receptors. Less-intensive, more-dispersed emissions result from on-road vehicle exhaust (for example, heavy-duty diesel trucks). For the construction HRA, the CalEEMod scenario for the proposed Project was adjusted to reduce diesel truck one-way trip distances to 0.25 miles to estimate emissions from truck pass-by at proximate receptors (SJVAPCD 2018).

Ambient Air Quality Analysis

Based on thresholds established in SJVAPCD's GAMAQI (SJVAPCD 2015a), project-related impacts on air quality may be significant when on-site emissions from construction or operational activities exceed the screening threshold of 100 pounds per day. Should Project on-site construction or operational emissions exceed this threshold, it is recommended that an ambient air quality analysis be performed. An ambient air quality analysis (AAQA) was performed for project construction emissions for NOx and CO. The purpose of the AAQA is to determine whether the proposed project's emissions would cause or contribute to exceedances of any CAAQS or NAAQS during construction or operation.

CO Hotspot

Heavy traffic congestion can contribute to high levels of CO. Individuals exposed to these CO "hot-spots" may have a greater likelihood of developing adverse health effects. The potential for the project to result in localized CO impacts at intersections resulting from addition of its traffic volumes is assessed based on Kern County's suggested criteria, which recommends performing a localized CO impact analysis for intersections operating at or below level of service (LOS) E.

Visibility Impacts

The County guidance states that potential impacts to visibility should be evaluated for all industrial projects and any other projects, such as mining projects, that have components that could generates dust or emissions related to visibility. Based on the Kern County guidelines, a visibility analysis is not required since the project is not a large industrial stationary-source or mining project, and it would not have long-term operational components that could generate substantial dust or emission plumes related to visibility.

Coccidioides Immitis Exposure

While there are no specific thresholds for the evaluation of potential Coccidioides immitis (Valley Fever) exposure, the potential for workers or area residents contracting Valley Fever as a result of the project is evaluated based on the anticipated earth-moving activities, and considers applicant-proposed measures and compliance with Rule 8021, Section 6.3, which requires development and implementation of a dust control plan to help control the release of the Coccidioides immitis fungus during construction activities.

Asbestos

There are no quantitative thresholds related to receptor exposure to asbestos. There are buildings on the Project site that could contain asbestos, given the age of the structures. Consistent with Federal regulations, asbestos and ACMs are deemed to be present in all structures that have not been tested. In compliance with SJVAPCD Rule 4002 (SJVAPCD 2007b; National Emission Standards for Hazardous Air Pollutants), these materials must be removed by a licensed and registered asbestos abatement contractor prior to demolition. All laws applicable to asbestos abatement will be followed during the demolition of the existing buildings.

Coronavirus Disease 2019

There are no definitive quantitative thresholds related to receptor exposure to COVID-19, and the relationship to exposure to $PM_{2.5}$.

Thresholds of Significance

The CEQA Appendix G Checklist and the Kern County adopted CEQA thresholds state that a project would have a significant air quality impact if it would:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard. Specifically, implementation of the proposed Project would have a significant impact on air quality if it would exceed any of the thresholds adopted by the SJVAPCD, as summarized in **Table 4.3-7:** *San Joaquin Valley Air Pollution Control District Criteria Pollutant Emissions Significance Thresholds (tons per year).*

- Expose sensitive receptors to substantial pollutant concentrations.
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Table 4.3-7: San Joaquin Valley Air Pollution Control District Criteria Pollutant Emissions Significance Thresholds (tons per year)

Pollutant/ Precursor	Construction Emissions	Operational Emissions	
		Permitted Sources and Activities	Non-Permitted Sources and Activities
ROG	10	10	10
NO_X	10	10	10
CO	100	100	100
SO_X	27	27	27
PM_{10}	15	15	15
$PM_{2.5}$	15	15	15

Source: SJVAPCD 2015a, Section 8.3

Key: CO = carbon monoxide; NO_X = oxides of nitrogen; $PM_{2.5}$ = particulate matter less than 2.5 microns; PM_{10} = particulate matter less than 10 microns; ROG = reactive organic gases; SO_X = sulfur oxides

Project Impacts

Impact 4.3-1: Would the Project conflict with or obstruct implementation of the applicable air quality plan?

Activities that would be authorized under the proposed Project would result in emissions from on-road vehicular traffic, use of consumer products, and landscape maintenance equipment. No new stationary sources of emissions are associated with proposed Project operation. Air pollutants would also be emitted during Project construction (off-road construction equipment, on-road vehicles, and fugitive PM from material movement).

Consistency with Applicable Air Quality Plans

Consistency with SJVAPCD Applicable Permits Required

SJVAPCD Rule 2010 (Permits Required) requires that an ATC Permit and a PTO be obtained prior to constructing, altering, replacing, or operating any device that emits or may emit air contaminants. SJVAPCD Rule 2410 (PSD) requires that preconstruction permits be obtained for new major stationary sources and major modifications to existing major stationary sources in areas classified as attainment or unclassifiable for any criteria pollutant. Since the proposed Project would not construct or modify an existing stationary-source device, no ATC Permits, Permits to Operate, or PSD preconstruction permits would be required.

SJVAPCD Rule 2410 (PSD) requires that preconstruction permits be obtained for new major stationary sources and major modifications to existing major stationary sources in areas classified as attainment or unclassifiable for any criteria pollutant. A stationary source or a modification is considered major if the net emissions increase equals or exceeds 40 tons per year VOC, 40 tons per

year NO_X, 15 tons per year PM_{10}, 10 tons per year $PM_{2.5}$, 100 tons per year CO, or 40 tons per year SO_2. Stationary-source emissions increases associated with the proposed Project would not exceed these thresholds. Therefore, a PSD preconstruction permit would not be required for the proposed Project.

Consistency with SJVAPCD Applicable Rules

The proposed Project would result in emissions from construction and on-road vehicular traffic from the construction and operations of the solar facility and associated infrastructure. The following SJVAPCD rules include requirements that would apply to the proposed Project's construction and/or operation activities:

- Rule 2020 (Exemptions)
- Rule 3135 (Dust Control Plan Fee)
- Rule 4101 (Visible Emissions)
- Rule 4102 (Nuisance)
- Rule 4201 (PM Concentration)
- Rule 4202 (PM Emission Rate)
- Rule 4651 (Soil Decontamination Operations)
- Rule 8011 (General Requirements)
- Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earth-moving Activities)
- Rule 8031 (Bulk Materials)
- Rule 8041 (Carryout and Trackout)
- Rule 8051 (Open Areas)
- Rule 8061 (Paved and Unpaved Roads)
- Rule 8071 (Unpaved Vehicle/Equipment Traffic Areas)
- Rule 9510 (ISR)

Consistency with Applicable Indirect Source Review

On December 15, 2005, the SJVAPCD Governing Board adopted Rule 9510 (ISR). The SJVAPCD's ISR rule is intended to reduce NO_X and PM_{10} emissions from new development projects. Rule 9510 requires large development projects to reduce exhaust emissions from construction equipment by 20 percent for NO_X and 45 percent for PM_{10} compared to the statewide average. When accounting for compliance with Rule 9510, emissions of NO_X and PM_{10} would not be reduced below levels of significance. Therefore, Mitigation Measures MM 4.3-1 through MM 4.3-7 would be required to reduce fugitive dust emissions by implementing exhaust reduction measures and a Fugitive Dust Control Plan. Exhaust reduction measures include equipment

maintenance, idling restrictions, and compliance with CARB and SJVAPCD rules which would lower pollutant emissions during construction activities. As noted in **Table 4.3-13:** *Construction Air Quality Impact Assessment—Mitigated*, temporary construction emissions would not exceed the thresholds adopted by Kern County for any pollutants. As noted in **Table 4.3-16:** *Estimated Annual Operational Criteria Air Pollutant Emissions—Unmitigated*, operational emissions would not exceed the threshold adopted by Kern County for any pollutants. Therefore, the project would not conflict with implementation of the air quality management plan

Permitted Source Emissions

Emission increases associated with activities authorized under this proposed Project would not be generated by stationary sources that would require SJVAPCD permits. Therefore, permitted source emissions would be consistent with the SJVAPCD's adopted regulatory program to attain state and federal ozone and PM standards.

Non-Permitted Source/Activity Emissions

Non-permitted sources and activities would be subject to the following federal and state regulatory programs that are incorporated within the attainment plans for state and federal ozone and PM standards:

- Heavy-duty engine and on-road vehicle standards enacted by CARB and the EPA (California Standards Codified at 13 CCR Section 1956.8).
- Light and medium on-road vehicle standards enacted by CARB (starting at 13 CCR Section 1900).

Non-permitted source/activity emissions were calculated using the CalEEMod emissions model Version 2022.1.1.29 model to generate emissions from construction activities and vehicle travel. CalEEMod includes default assumptions that reflect all adopted federal and state engine standards. Emissions estimates were calculated with assumptions consistent with adopted regulatory programs; therefore, non-permitted source/activities would be consistent with adopted regulatory programs incorporated within the SJVAPCD's ozone and PM attainment plans.

Consistency with Kern County General Plan

The proposed solar facility activities must comply with the policies and measures of the KCGP as discussed in greater detail in Section 4.11, *Land Use and Planning*, of this Draft EIR. Specifically, as discussed in the KCGP policy consistency analysis provided in **Table 4.3-11:** *Project Consistency with Local Planning Documents*, Section 1.10.2, Air Quality, KCGP Policies 18, 20, 21, and 22, and Implementation Measure H include requirements that apply to the proposed Project which are intended (in part) to achieve compliance with certain rules, regulations, and attainment goals that the SJVAPCD either enforces or has responsibility for achieving. The proposed Project would be subject to Mitigation Measures MM 4.3-1 through MM 4.3-3, in order to achieve consistency with these KCGP Policies and Implementation Measure. Further, as stated in the policy consistency analysis provided in **Table 4.3-11:** *Project Consistency with Local Planning Documents*, Section 1.10.2, Air Quality, KCGP Policy 19, given that the proposed Project will result in the unavoidably significant cumulative impacts described below, the Kern County Board

of Supervisors must adopt the mitigation measures set forth in this Section 4.3, *Air Quality,* and adopt a statement of overriding considerations to find the proposed Project consistent with the CEQA procedural requirements of KCGP Policy 19.

PG&E Midway (Midway) Substation Upgrades

The proposed Project includes Midway Substation's 500 kV yard within the PG&E owned Midway Substation property boundaries. The PG&E Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities. To support the proposed Buttonbush Solar and Storage Project's communication infrastructure, PG&E may install two 4-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest. This fiber-optic line is critical for the safe and efficient operation of the proposed Project. The fiber-optic line route will be trenched underground from the Midway Substation to the Point of Change of Ownership.

PG&E proposes to remove the existing precast security wall at the northwest side of the Midway Substation and replace it with a new 12-foot wall, similar in appearance and material, approximately 510 feet north and 140 feet west of the existing walls of the 500 kV yard within Midway Substation. Grading of the connection area may be required and prior to any ground-disturbing activities. PG&E would acquire all necessary permits. Within the proposed graded area of the Midway Substation, PG&E would install approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker. This would include installing equipment foundations and concrete trenches, equipment cabinets, bus structures, communication lines, conduits, pull boxes, and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, PG&E would install up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from Midway Substation to the Point of Change of Ownership for the proposed project. Up to four approximately 175-foot-tall lattice steel towers or tubular steel poles would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads.

The analysis of air quality impacts set forth above included the impacts associated with the Midway Substation upgrades. As stated above, since the proposed Project—including, but not limited to, the Midway Substation upgrades—would not construct or modify an existing stationary-source device, no ATC Permits, Permits to Operate, or PSD preconstruction permits would be required.

The Midway Substation upgrades would contribute emissions from construction and on-road vehicular traffic from construction and operations The Midway Substation upgrades would not emit more than 2.0 tons of operational NO_X or PM_{10} and, therefore, is exempt from the SJAVPCD's ISR Rule 9510.However, activities involved in the Midway Substation upgrades would be subject to the heavy-duty engine and on-road vehicle standards enacted by CARB and the EPA (California Standards Codified at 13 CCR Section 1956.8), and light and medium on-road vehicle standards enacted by CARB (starting at 13 CCR Section 1900), which are incorporated within the attainment plans for state and federal ozone and PM standards.

Additionally, the Midway Substation upgrades would not conflict with existing land uses or result in population growth that would result in impacts outside the assumptions of applicable air quality management plans. In addition, the Midway Substation upgrades would not result in a substantial increase in long-term trips or vehicle miles traveled in the area. Finally, Pacific Gas & Electric's (PG&E's) would comply with applicable laws and regulations and implement their adopted Best Management Practices (BMPs) (Appendix M): such as those involving erosion control measures; requiring vehicles and equipment to use paved, existing roads where practicable; requiring use of motorized equipment that complies with CARB permitting requirements; and to minimize vehicle idling.

Mitigation Measures

MM 4.3-1: The project shall continuously comply with applicable rules and regulations set forth by the San Joaquin Valley Air Pollution Control District.

MM 4.3-2: Prior to issuance of any grading permit, the project proponent shall submit a Site-Specific Dust Control Plan for review and approval by the Kern County Planning and Natural Resources Department. The Site-Specific Dust Control Plan shall serve to minimize fugitive dust emissions during project construction. The Site-Specific Dust Control Plan shall take into consideration grading and construction schedule, seasonal winds, site-specific wind patterns and soil conditions to ensure adequate measures are implemented to manage fugitive dust. The Site-Specific Dust Control Plan shall:

a. Identify a comprehensive phased grading schedule for the entire project site. When feasible, grading activities shall be phased and minimized to those areas necessary for project access and installation of solar panels and other areas of infrastructure associated with the solar facility.

b. The Site-Specific Dust Control Plan shall identify, in addition to those measures required by the air district, all measures being undertaken during construction activities and operational activities to ensure fugitive dust being blown off-site is minimized. Measures may include, but are not limited to:

    1. Use of water trucks as required for the expected level of winds in the area.
    2. Use of dust suppressant (i.e., soil binders or mulch).
    3. Pre-seeding and irrigating prior to construction to create vegetation with useful root structures.
    4. Construction of dust screening in appropriate locations around the project site (i.e., fence slats or mesh screening).
    5. A copy of the approved Site-Specific Dust Control Plan shall be kept at the on-site construction office and all measures included in the Site-Specific Dust Control Plan shall be included on all Grading Plans issued for the project by the Kern County Public Works Department.

MM 4.3-3: Prior to the issuance of building and grading permits, the project proponent shall provide the Kern County Planning and Natural Resources Department with proof than an Indirect Source Review application has been approved by the San Joaquin Valley Air Pollution Control District.

MM 4.3-4: Prior to the issuance of grading permits, the Owner/Operator shall enter into a Developer Mitigation Agreement (DMA) with the San Joaquin Valley Air Pollution Control District. The DMA is to fully mitigate construction and operations criteria air emissions of project implementation for project vehicle and other mobile source emissions. The Owner/Operator shall pay fees to fully mitigate project emissions of NOx (oxides of nitrogen), ROG (reactive organic gases), PM_{10} (particulate matter of 10 microns or less in diameter), and PM 2.5 (particulate matter of 2.5 microns or less in diameter) (collectively referred to as "designated criteria emissions") to avoid any net increase in these pollutants. The air quality mitigation fee shall be paid prior to the approval of any construction or grading approval or payment plan as designated by the San Joaquin Valley Air Pollution Control District.

MM 4.3-5: The project proponent and/or its contractors shall continuously implement the following measures during construction and operation of the project to control emissions from the on-site equipment:

a. All equipment shall be maintained in accordance with the manufacture's specifications.

b. All equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for extended periods of time. Engine idling of all equipment shall be minimized.

c. Construction equipment shall not operate longer than eight hours per day.

d. All construction vehicles shall be equipped with proper emissions control equipment and kept in good and proper running order to substantially reduce NOX emissions.

e. On-road and off-road diesel equipment shall use diesel particulate filters (or the equivalent) if permitted under manufacturer's guidelines.

f. All on-site off-road equipment on-road vehicles shall meet the recent California Air Resources Board engine emission standards or alternatively fueled equipment, such as compressed natural gas, liquefied natural gas, or electric, as appropriate.

g. Tier 4 engines shall be used on all equipment when available.

MM 4.3-6: Prior to commencement of any on-site construction activities (i.e., fence construction, mobilization of construction equipment, initial grading), including decommissioning, the project proponent shall provide written notice to the public through mailing a notice to all parcels within 1,000 feet of the project site, no

sooner than 15 days prior to construction activities. The notices shall include the construction schedule, a telephone number and email address where complaints and questions can be registered. Additionally, a minimum of one sign, legible at a distance of 50 feet, shall also be posted at the construction sites or adjacent to the nearest public access to the main construction entrances throughout construction activities which include the construction schedule (updated as needed) and a telephone number where complaints can be registered. Documentation that the public notice has been sent and the sign has been posted shall be provided to the Kern County Planning and Natural Resources Department.

MM 4.3-7: Prior to the issuance of any grading or building permit, the project proponent shall establish a "construction coordinator" and submit written documentation which includes their phone number, email address and mailing address. The construction coordinator shall be responsible for the following:

a. Responding to any local complaints about construction activities. The construction coordinator shall determine the cause of the construction complaint and shall be required to implement reasonable measures such that the complaint is resolved.

b. Ensuring all appropriate construction notices have been made available to the public and that all appropriate construction signs have been installed.

c. Maintaining an ongoing up-to-date log of all construction related complaints (i.e., blowing dust, inability to access parcels, etc.) during Project construction activities. The log shall include the nature of the complaint and the measures that were undertaken to address the concerns. Upon request, the construction coordinator shall provide the log to the Planning and Natural Resources Department no later than three business days from request.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.3-2: Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standards?

Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the SJVAPCD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality. As described previously, the project would have a temporary significant and unavoidable impact for construction with mitigation and a less than significant impact for operations.

As described above in Sections 4.3.2, *Environmental Setting*, and 4.3.3, *Regulatory Setting*, the current nonattainment status of regional pollutants is determined by past development and present activities. The SJVAPCD's attainment plans are designed to ensure the future attainment of state and federal ambient air quality standards. Consequently, the SJVAPCD's application of thresholds of significance for emission of criteria pollutants determines whether a project's emissions would have a cumulatively considerable contribution of emissions of a criteria pollutant for which the SJVAPCD is in nonattainment. If project emissions exceed the thresholds of significance for criteria pollutants the proposed Project would be expected to result in a considerable net increase of any criteria pollutant for which the SJVAPCD is in nonattainment under applicable federal or state ambient air quality standards. The SJV is in nonattainment for $PM_{2.5}$, PM_{10}, and ozone. Ozone is addressed by examining its precursors which are NO_X, VOC, and CO.

As stated above, to evaluate whether the activities that would be authorized under the proposed Project would result in a cumulatively considerable net increase of any criteria pollutant for which the SJVAB is in nonattainment, pollutant emissions will be evaluated against the SJVAPCD Criteria Pollutant thresholds listed in **Table 4.3-8:** *Estimated Annual Construction Criteria Air Pollutant Emissions—Unmitigated*. For this analysis, if these thresholds are exceeded then the proposed Project would be considered to have significant impacts. Source data and emissions associated with the proposed Project were determined based on the *Final Air Quality, Greenhouse Gas Emissions, and Energy Technical Report* (Appendix C.2).

Construction and Decommissioning

Construction of the proposed Project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (that is, off-road construction equipment, soil disturbance, and ROG off-gassing) and off-site sources (that is, vendor trucks and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. Therefore, such emission levels can only be estimated with a corresponding uncertainty in precise ambient air quality impacts.

As discussed in Section 4.3.4, *Methodology, Construction Emissions*, criteria air pollutant emissions associated with temporary construction activity were quantified using CalEEMod. Construction emissions were calculated for the estimated worst-case day over the construction period associated with each phase and reported as the annual emissions estimated during construction. Construction schedule assumptions, including phase type, duration, and sequencing, were based on information provided by the Project proponent and are intended to represent a reasonable scenario based on the best information available. Default values provided in CalEEMod were used where detailed project information was not available.

Implementation of the proposed Project would generate air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, architectural coatings, and asphalt pavement application. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. The proposed Project would implement various dust control strategies and would be required to comply with SJVAPCD Regulation VIII

to control dust emissions generated during grading activities. Proposed construction practices that would be employed to reduce fugitive dust emissions include watering of the active sites and unpaved roads two times per day, depending on weather conditions, and restricting vehicle speed on unpaved roads to 15 miles per hour. Internal combustion engines used by construction equipment, vendor trucks (that is, delivery trucks), and worker vehicles would result in emissions of ROGs, NO_x, CO, PM_{10}, and $PM_{2.5}$. Pursuant to Regulation VIII, Rule 8021, Section 6.3, the proposed Project would be required to develop, prepare, submit, obtain approval of, and implement a dust control plan, which would reduce fugitive dust impacts to less than significant for Project construction.

Table 4.3-8: *Estimated Annual Construction Criteria Air Pollutant Emissions—Unmitigated*, presents the estimated annual construction emissions generated during construction of the proposed Project, including decommissioning activities. Details of the emission calculations are provided in Appendix C.2.

Table 4.3-8: Estimated Annual Construction Criteria Air Pollutant Emissions—Unmitigated

Year	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Tons Per Year					
2025	0.71	5.69	5.46	0.01	8.60	1.16
2026	2.24	16.29	19.83	0.04	26.10	3.61
2027	1.37	10.67	10.05	0.03	17.07	2.29
2028	1.91	13.97	21.07	0.05	27.11	3.42
2029	1.50	9.27	16.67	0.04	29.28	3.57
2030	0.60	3.44	6.39	0.02	12.98	1.58
2061[1]	0.14	1.01	2.46	0.01	4.37	0.52
2062[1]	0.95	7.11	16.23	0.04	28.02	3.33
2063[1]	1.15	9.17	16.56	0.05	25.62	3.03
Maximum	**2.24**	**16.96**	**21.07**	**0.05**	**29.28**	**3.64**
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	**No**	**Yes**	**No**	**No**	**Yes**	**No**
Annual Emissions with ISR Compliance[2]	2.24	13.57	21.07	0.05	16.10	3.64
Threshold Exceeded?	**No**	**Yes**	**No**	**No**	**Yes**	**No**

Source: Dudek 2025

Notes:

These emissions reflect compliance with SJVAPCD's Rule 8021 fugitive dust control strategies, including watering of the Project site and unpaved roads two times per day and restricting vehicle speed on unpaved roads to 15 miles per hour.

[1] While the emissions from decommissioning will take place in 2061-2063, they were modeled in 2047-2049 as CalEEMod does not have emission factors past 2050.

[2] This row reflects minimum required emissions reductions in NO_x and PM_{10} to comply with Rule 9510.

Key: CO = carbon monoxide; ISR = Indirect Source Review; NO_x = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter; PM_{10} = coarse particulate matter; ROG = reactive organic gas; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_x = sulfur oxides

As shown in **Table 4.3-8:** *Estimated Annual Construction Criteria Air Pollutant Emissions—Unmitigated,* annual construction emissions would not exceed the SJVAPCD significance thresholds for ROG, CO, SO_x, or $PM_{2.5}$; however, the proposed Project would exceed the threshold for NOx and PM_{10}. The proposed Project would also comply with SJVAPCD Rule 9510, Indirect Source Review, which requires large development projects to reduce exhaust emissions from construction equipment by 20 percent for NO_x and 45 percent for $PM_{10,}$ compared to the statewide average. When accounting for compliance with Rule 9510, emissions of NOx and PM_{10} would not be reduced below levels of significance; thus, mitigation is required.

Table 4.3-9: *Estimated Annual Construction Criteria Air Pollutant Emissions—Mitigated*, presents the estimated annual construction emissions generated during construction of the proposed Project with implementation of Mitigation Measure MM 4.3-1 through MM 4.3-5. Details of the emission calculations are provided in Appendix C.2.

Table 4.3-9: Estimated Annual Construction Criteria Air Pollutant Emissions—Mitigated

Year	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Tons Per Year					
2025	0.25	1.65	7.03	0.01	8.39	0.97
2026	0.85	5.30	22.14	0.04	25.43	2.99
2027	0.40	3.24	12.60	0.03	16.56	1.89
2028	0.92	6.72	19.59	0.04	26.72	3.18
2029	0.89	5.16	19.21	0.04	29.03	3.44
2030	0.37	1.99	8.09	0.02	12.88	1.52
2061	0.07	0.57	2.98	0.01	4.36	0.51
2062	0.46	3.59	17.97	0.04	27.96	3.28
2063	0.37	3.02	12.22	0.03	25.58	3.00
Maximum	**0.92**	**6.72**	**19.59**	**0.04**	**29.03**	**3.44**
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**Yes**	**No**
Annual Emissions with ISR Compliance[1]	0.95	5.38	19.59	0.04	15.97	3.44
Threshold Exceeded?	**No**	**No**	**No**	**No**	**Yes**	**No**
VERA	**N/A**	**N/A**	**N/A**	**N/A**	**0.97**	**N/A**

Source: Dudek 2025

Notes:

These emissions reflect compliance with SJVAPCD's Rule 8021 fugitive dust control strategies, including watering of the Project site and unpaved roads two times per day and restricting vehicle speed on unpaved roads to 15 miles per hour.

Emissions include application of Mitigation Measures MM-4.3-1 through MM-4.3-5.

[1] This row reflects minimum required emissions reductions in NOx and PM10 to comply with Rule 9510.

Key: CO = carbon monoxide; ISR = Indirect Source Review; <0.01 = reported value less than 0.01; N/A = not applicable; NO_x = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter; PM_{10} = coarse particulate matter; ROG = reactive organic gas; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_x = sulfur oxides; VERA = voluntary emissions reduction agreement

As shown in **Table 4.3-9:** *Estimated Annual Construction Criteria Air Pollutant Emissions—Mitigated*, annual construction emissions with the implementation of Mitigation Measure MM 4.3-1 through MM 4.3-3 would not exceed the SJVAPCD significance thresholds for ROG, NO_x, CO, SO_x, or $PM_{2.5}$; however, the proposed Project would still exceed the threshold for PM_{10}. The proposed Project would also comply with SJVAPCD Rule 9510, Indirect Source Review (Mitigation Measure MM 4.3-3), which requires large development projects to reduce exhaust emissions from construction equipment by 20 percent for NO_x and 45 percent for $PM_{10,}$ compared to the statewide average. When accounting for compliance with Rule 9510, emissions of PM_{10} would not be reduced below levels of significance. However, implementation of Mitigation Measure MM 4.3-4 would further reduce impacts related to Project-generated construction emissions to below SJVAPCD significance thresholds.

The maximum daily emissions during construction are shown in **Table 4.3-10:** *Maximum Daily Construction Criteria Air Pollutant Emissions—Unmitigated.* As shown in the table, the proposed Project would exceed the 100-pound-per-day screening threshold for NO_x and CO, after assuming compliance with SJVAPCD Rule 9510.

Table 4.3-10: Maximum Daily Construction Criteria Air Pollutant Emissions—Unmitigated

Year	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds Per Day					
Summer						
2025	10.55	71.88	55.29	0.13	6.70	3.55
2026	28.76	179.47	168.58	0.31	15.46	9.42
2027	7.26	53.06	39.39	0.11	4.81	2.72
2028	15.02	86.37	120.57	0.23	5.20	2.60
2029	10.03	37.01	60.50	0.15	4.04	1.53
2030	9.66	35.51	59.77	0.15	3.98	1.48
2061	6.71	33.27	93.56	0.18	3.50	1.04
2062	9.53	61.16	111.40	0.23	3.26	0.81
Winter						
2025	10.21	72.15	57.27	0.13	6.70	3.55
2026	17.85	111.85	118.15	0.18	8.88	5.99
2027	24.58	161.50	156.57	0.29	13.50	8.54
2028	21.55	138.75	164.00	0.34	9.98	5.30
2029	22.56	117.00	186.27	0.38	8.55	3.50
2030	9.16	35.88	63.01	0.15	3.98	1.48
2061	6.71	34.39	95.61	0.18	3.57	1.10
2062	9.46	61.57	112.98	0.23	3.50	1.04
2063	9.46	61.49	112.97	0.23	3.26	0.81
Maximum	**28.76**	**179.47**	**186.27**	**0.38**	**15.46**	**9.42**
SJVAPCD Threshold	*100*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	**No**	**Yes**	**Yes**	**No**	**No**	**No**
Daily Emissions with ISR Compliance[1]	**28.76**	**143.58**	**186.27**	**0.38**	**8.50**	**9.42**
Threshold Exceeded?	**No**	**Yes**	**Yes**	**No**	**No**	**No**

Source: Dudek 2025

Notes:

These emissions reflect compliance with SJVAPCD's Rule 8021 fugitive dust control strategies, including watering of the Project site and unpaved roads twice times per day and restricting vehicle speed on unpaved roads to 15 miles per hour.

See Appendix A for complete results.

[1] This row reflects minimum required emissions reductions in NOx and PM_{10} to comply with Rule 9510.

Key: CO = carbon monoxide; ISR = Indirect Source Review; <0.01 = reported value less than 0.01; NO_x = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter; PM_{10} = coarse particulate matter; ROG = reactive organic gas; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_x = sulfur oxides

Table 4.3-11: *Maximum Daily Construction Criteria Air Pollutant Emissions—Mitigated*, shows the maximum daily construction emissions with implementation of Mitigation Measure MM 4.3-1 through Mitigation Measure MM 4.3-5. As shown in the table, with mitigation, the proposed Project would exceed the 100-pound-per-day screening threshold for CO after assuming compliance with SJVAPCD Rule 9510. As such, an ambient air quality assessment is required and provided below.

Table 4.3-11: Maximum Daily Construction Criteria Air Pollutant Emissions—Mitigated

Year	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds Per Day					
Summer						
2025	3.53	10.34	79.27	0.13	3.48	0.61
2026	10.11	30.41	206.22	0.30	6.54	1.26
2027	1.54	8.58	59.64	0.10	2.30	0.43
2028	7.47	31.52	104.37	0.16	2.72	0.87
2029	6.20	11.65	88.52	0.14	2.99	0.59
2030	5.94	11.53	87.92	0.14	2.99	0.59
2061	3.58	12.46	119.26	0.17	3.05	0.65
2062	3.04	9.75	75.12	0.12	2.95	0.55
Winter						
2025	3.19	10.62	81.24	0.13	3.48	0.61
2026	6.06	20.53	161.75	0.17	3.48	0.65
2027	7.30	29.20	190.63	0.28	5.35	1.09
2028	8.31	40.66	168.09	0.27	4.80	1.30
2029	12.14	43.47	199.11	0.30	6.23	1.41
2030	5.44	11.90	91.16	0.14	2.99	0.59
2061	3.51	12.79	120.87	0.17	3.05	0.65
2062	3.48	12.78	120.81	0.17	3.05	0.65
2063	2.96	10.08	76.69	0.12	2.95	0.55
Maximum	**12.14**	**43.47**	**199.11**	**0.30**	**6.23**	**1.41**
SJVAPCD Threshold	100	100	100	100	100	100
Threshold Exceeded?	**No**	**No**	**Yes**	**No**	**No**	**No**
Daily Emissions with ISR Compliance[1]	12.14	34.78	199.11	0.30	3.43	1.41
Threshold Exceeded?	**No**	**No**	**Yes**	**No**	**No**	**No**

Source: Dudek 2025

Notes:

These emissions compliance with SJVAPCD's Rule 8021 fugitive dust control strategies, including watering of the Project site and unpaved roads twice times per day and restricting vehicle speed on unpaved roads to 15 miles per hour.

See Appendix A for complete results.

[1] This row reflects minimum required emissions reductions in NO_x and PM_{10} to comply with Rule 9510.

Key: CO = carbon monoxide; ISR = Indirect Source Review; <0.01 = reported value less than 0.01; NO_x = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter; PM_{10} = coarse particulate matter; ROG = reactive organic gas; SJVAPCD = San Joaquin Valley Air Pollution Control District; SO_x = sulfur oxides

Construction Ambient Impact Assessment

Although the proposed Project would not exceed the annual significance threshold established by the SJVAPCD for any criteria pollutant with the inclusion of mitigation, the proposed Project would emit more than 100 pounds of CO per day during construction. As recommended by the *Guidance for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015a), an ambient air quality impacts assessment should be performed if any pollutants exceed 100 pounds per day during construction or operation. Maximum daily emissions were used as the basis for determining the proposed Project's potential impact on ambient air quality. Summary tables of annual and daily emissions associated with construction are included in Appendix C.2.

For Step 1 of the ambient air quality assessment, the maximum background concentration for the Project site for each pollutant and averaging period combination was added to the corresponding maximum ground-level concentration (GLC) from Project-related construction. The sum of these values was then compared to the corresponding ambient air quality standard. If the assessment revealed that the incremental increase in concentration from Project-related sources will not cause an exceedance of an ambient air quality standard, then the analysis is complete for that source/receptor/pollutant combination. However, if the assessment revealed that an incremental increase in concentration from Project-related sources will cause an exceedance of an ambient air quality standard, then the analysis proceeded to Step 2. Step 2 was similar to Step 1, with one major difference. For this second step, the maximum GLC of each pollutant and averaging period combination were compared to its corresponding significant impact level (SIL). The SIL was used to evaluate whether the proposed Project's construction emissions would contribute to a violation of an ambient air quality standard, where the background level is close to or exceeds an ambient air quality standard. If the assessment revealed that the maximum GLC will not exceed the corresponding SIL, then the analysis was complete for that source/receptor/pollutant combination, and no further analysis was required.

Table 4.3-12: *Construction Air Quality Impact Assessment—Unmitigated*, presents a summary of the results of the air quality impact assessment undertaken to determine whether construction activities associated with the proposed Project would cause or contribute to ambient air quality impacts.

As shown in **Table 4.3-12:** *Construction Air Quality Impact Assessment—Unmitigated*, the unmitigated construction emissions would not exceed the SILs for any pollutant. **Table 4.3-13:** *Construction Air Quality Impact Assessment—Mitigated*, shows the mitigated construction emissions including application of Mitigation Measure MM 4.3-1 through Mitigation Measure MM 4.3-5.

Table 4.3-12: Construction Air Quality Impact Assessment—Unmitigated

Impact Parameter	Applicable Standard	Project Area Maximum Background Concentration (Years 2019–2021)		Project Contribution ($\mu g/m^3$)	Cumulative Concentration ($\mu g/m^3$)	AAQS Threshold ($\mu g/m^3$)	Step 1 Significance	SIL ($\mu g/m^3$)	Step 2 Significance
		ppmv	$\mu g/m^3$						
1-hour CO	State	2.8	3,208	26.20	3,234	22,900	PASS	2000	Step 1
	Federal	2.8	3,208	26.20	3,234	40,100	PASS	2000	Step 1
8-hour CO	State	1.6	1,833	10.30	1,843	10,300	PASS	500	Step 1
	Federal	1.6	1,833	10.30	1,843	10,300	PASS	500	Step 1
1-hour NO_2	State	0.049	92	20.19	112	339	PASS	7.5	Step 1
	Federal	0.049	92	20.19	112	188	PASS	7.5	Step 1
Annual NO_2	State	0.008	15	2.33	18	57	PASS	1	Step 1
	Federal	0.008	15	2.33	17	100	PASS	1	Step 1
1-hour SO_2	State	0.016	42	0.05	42	655	PASS	7.5	Step 1
	Federal	0.016	42	0.05	42	196	PASS	7.8	Step 1
24-Hour SO_2	State	0.002	5	0.01	5	105	PASS	5	Step 1
	Federal	0.002	5	0.01	5	367	PASS	5	Step 1
Annual SO2	Federal	0.000	1	0.00	1	79	PASS	1	Step 1
24-hour PM_{10} – Exhaust	State	ND	439	0.36	440	50	Step 2	5	PASS
	Federal	ND	438	0.36	438	150	Step 2	5	PASS
24-hour PM_{10} – Fugitive	State	ND	439	0.23	440	50	Step 2	10.4	PASS
	Federal	ND	438	0.23	438	150	Step 2	10.4	PASS
Annual PM_{10} – Exhaust	State	ND	49	0.12	49	20	Step 2	1	PASS

Table 4.3-12: Construction Air Quality Impact Assessment—Unmitigated

Impact Parameter	Applicable Standard	Project Area Maximum Background Concentration (Years 2019–2021)		Project Contribution (µg/m³)	Cumulative Concentration (µg/m³)	AAQS Threshold (µg/m³)	Step 1 Significance	SIL (µg/m³)	Step 2 Significance
		ppmv	µg/m³						
Annual PM_{10} – Fugitive	State	ND	49	0.08	49	20	Step 2	2.08	PASS
24-hour $PM_{2.5}$ – Exhaust	Federal	ND	151	0.33	151	35	Step 2	1.2	PASS
24-hour $PM_{2.5}$ – Fugitive	Federal	ND	151	0.03	151	35	Step 2	2.5	PASS
Annual $PM_{2.5}$ – Exhaust	State	ND	20	0.11	20	12	Step 2	0.2	PASS
	Federal	ND	20	0.11	20	12	Step 2	0.2	PASS
Annual $PM_{2.5}$ - Fugitive	State	ND	20	0.01	20	12	Step 2	0.63	PASS
	Federal	ND	20	0.01	20	12	Step 2	0.63	PASS

Source: Dudek 2025

Key: µg/m³ = micrograms per cubic meter; AAQS = ambient air quality standards; CO = carbon monoxide; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; ppmv = parts per million by volume; ND = insufficient data available to determine the value; NO_2 = nitrogen dioxide; SIL = Significant Impact Level; SO_2 = sulfur dioxide

Table 4.3-13: Construction Air Quality Impact Assessment—Mitigated

Impact Parameter	Applicable Standard	Project Area Maximum Background Concentration (Years 2019–2021)		Project Contribution (µg/m³)	Cumulative Concentration (µg/m³)	AAQS Threshold (µg/m³)	Step 1 Significance	SIL (µg/m³)	Step 2 Significance
		ppmv	µg/m³						
1-hour CO	State	2.8	3,208	28.00	3,236	22,900	PASS	2000	Step 1
	Federal	2.8	3,208	28.00	3,236	40,100	PASS	2000	Step 1
8-hour CO	State	1.6	1,833	11.01	1,844	10,300	PASS	500	Step 1
	Federal	1.6	1,833	11.01	1,844	10,300	PASS	500	Step 1
1-hour NO_2	State	0.049	92	4.89	97	339	PASS	7.5	Step 1
	Federal	0.049	92	4.89	97	188	PASS	7.5	Step 1
Annual NO_2	State	0.008	15	0.57	16	57	PASS	1	Step 1
	Federal	0.008	15	0.57	16	100	PASS	1	Step 1
1-hour SO_2	State	0.016	42	0.04	42	655	PASS	7.5	Step 1
	Federal	0.016	42	0.04	42	196	PASS	7.8	Step 1
24-Hour SO_2	State	0.002	5	0.01	5	105	PASS	5	Step 1
	Federal	0.002	5	0.01	5	367	PASS	5	Step 1
Annual SO_2	Federal	0.000	1	0.00	1	79	PASS	1	Step 1
24-hour PM_{10} – Exhaust	State	ND	439	0.03	439	50	Step 2	5	PASS
	Federal	ND	438	0.03	438	150	Step 2	5	PASS
24-hour PM_{10} – Fugitive	State	ND	439	0.21	440	50	Step 2	10.4	PASS
	Federal	ND	438	0.21	438	150	Step 2	10.4	PASS
Annual PM_{10} – Exhaust	State	ND	49	0.01	49	20	Step 2	1	PASS
Annual PM_{10} – Fugitive	State	ND	49	0.07	49	20	Step 2	2.08	PASS
24-hour	Federal	ND	151	0.03	151	35	Step 2	1.2	PASS

Table 4.3-13: Construction Air Quality Impact Assessment—Mitigated

Impact Parameter	Applicable Standard	Project Area Maximum Background Concentration (Years 2019–2021)		Project Contribution (µg/m³)	Cumulative Concentration (µg/m³)	AAQS Threshold (µg/m³)	Step 1 Significance	SIL (µg/m³)	Step 2 Significance
		ppmv	µg/m³						
$PM_{2.5}$ – Exhaust									
24-hour $PM_{2.5}$ – Fugitive	Federal	ND	151	0.02	151	35	Step 2	2.5	PASS
Annual $PM_{2.5}$ – Exhaust	State	ND	20	0.01	20	12	Step 2	0.2	PASS
	Federal	ND	20	0.01	20	12	Step 2	0.2	PASS
Annual $PM_{2.5}$ – Fugitive	State	ND	20	0.01	20	12	Step 2	0.63	PASS
	Federal	ND	20	0.01	20	12	Step 2	0.63	PASS

Source: Dudek 2025

Key: µg/m³ = micrograms per cubic meter; AAQS = ambient air quality standards; CO = carbon monoxide; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; ppmv = parts per million by volume; ND = insufficient data available to determine the value; NO_2 = nitrogen dioxide; SIL = Significant Impact Level; SO_2 = sulfur dioxide

As shown in **Table 4.3-13:** *Construction Air Quality Impact Assessment—Mitigated*, the proposed Project would result in construction activities that would generate ambient concentrations of criteria pollutants below the applicable thresholds with application of Mitigation Measure MM 4.3-1 through Mitigation Measure MM 4.3-5. Therefore, the proposed Project would have a less than significant impact for construction with mitigation and a less than significant impact for operations.

Construction Ambient Air Quality Impacts

As discussed in Section 4.3.4, *Methodology*, in accordance with the County's CEQA Guidelines, the maximum 24-hour average concentration of PM_{10} and $PM_{2.5}$ was modeled at the proposed Project boundary and compared to the NAAQS or CAAQS, whichever is more stringent. **Table 4.3-14:** *Construction Emissions Dispersion Modeling Results—Unmitigated*, shows the results of the dispersion modeling.

Table 4.3-14: Construction Emissions Dispersion Modeling Results—Unmitigated

	PM_{10}	**$PM_{2.5}$**
	$\mu g/m^3$	
Construction Emissions	0.26	0.10
Threshold	*50*[1]	*35*[2]
Threshold Exceeded?	**No**	**No**

Notes:

See Dudek 2025 for complete results.

[1] The CAAQS for PM10 is 50 $\mu g/m^3$ and the NAAQS is 150 $\mu g/m^3$ for the 24-hour averaging period.

[2] The NAAQS for PM2.5 is 35 $\mu g/m^3$ for the 24-hour averaging time. There is no $PM_{2.5}$ CAAQS for the 24-hour averaging period.

Key: $\mu g/m^3$ = micrograms per cubic meter; $PM_{2.5}$ = fine particulate matter; PM_{10} = coarse particulate matter

As shown in **Table 4.3-14:** *Construction Emissions Dispersion Modeling Results—Unmitigated*, the maximum unmitigated concentrations of PM_{10} and $PM_{2.5}$ emissions at the proposed Project boundary during construction would not exceed the NAAQS or CAAQS. Further, **Table 4.3-15:** *Construction Emissions Dispersion Modeling Results—Mitigated*, shows the maximum mitigated concentrations of PM_{10} and $PM_{2.5}$ at the proposed Project boundary during construction, with the inclusion of Mitigation Measure MM 4.3-1 through Mitigation Measure MM 4.3-5. As shown in **Table 4.3-15:** *Construction Emissions Dispersion Modeling Results—Mitigated*, the maximum mitigated concentrations of PM_{10} and $PM_{2.5}$ emissions at the proposed Project boundary during construction would not exceed the NAAQS or CAAQS.

Table 4.3-15: Construction Emissions Dispersion Modeling Results—Mitigated

	PM_{10}	$PM_{2.5}$
	$\mu g/m^3$	
Construction Emissions	0.10	0.02
Threshold	*50*[1]	*35*[2]
Threshold Exceeded?	**No**	**No**

Source: Dudek 2025

Notes:

[1] The CAAQS for PM_{10} is 50 $\mu g/m^3$ and the NAAQS is 150 $\mu g/m^3$ for the 24-hour averaging period.

[2] The NAAQS for $PM_{2.5}$ is 35 $\mu g/m^3$ for the 24-hour averaging time. There is no $PM_{2.5}$ CAAQS for the 24-hour averaging period.

Key: $\mu g/m^3$ = micrograms per cubic meter; $PM_{2.5}$ = fine particulate matter; PM_{10} = coarse particulate matter

Operational Emissions

Operation of the proposed Project would generate ROG, NOx, CO, SOx, PM10, and PM2.5 emissions from mobile sources, including vehicle trips from passenger vehicles and heavy-duty trucks, and area sources, including the use of consumer products and landscape maintenance equipment along with emergency backup generators However, the proposed Project does not result in substantial or continuous energy emissions given that the proposed Project would generate solar energy and would not require natural-gas appliances. **Table 4.3-16:** *Estimated Annual Operational Criteria Air Pollutant Emissions—Unmitigated*, presents the annual area and mobile emissions associated with operation (year 2030) of the proposed Project. Details of the emission calculations are provided in Appendix C.2.

Table 4.3-16: Estimated Annual Operational Criteria Air Pollutant Emissions—Unmitigated

	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Emission Source	**Tons Per Year**					
Mobile	0.02	0.38	0.45	0.00	0.25	0.07
Area	0.25	0.00	0.21	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.27	0.38	0.66	0.00	0.25	0.07
SJVAPCD Threshold	*10*	*10*	*100*	*27*	*15*	*15*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Dudek 2025

Note: Totals may not sum due to rounding.

Key: CO = carbon monoxide; NO_x = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter; PM_{10} = coarse particulate matter; ROG = reactive organic compound; SJVAPCD = San Joaquin Valley Air Pollution Control District; <0.01 = reported value less than 0.01; SO_x = sulfur oxides

As shown in **Table 4.3-16:** *Estimated Annual Operational Criteria Air Pollutant Emissions—Unmitigated*, the combined annual area and mobile source emissions would not exceed the SJVAPCD's operational thresholds for ROG, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$.

The SJVAPCD recommends that an ambient air quality assessment be performed when on-site emissions of any criteria pollutant would equal or exceed any applicable threshold of significance for criteria pollutants or 100 pounds per day of any criteria pollutant (SJVAPCD 2015a). The results of the screening analysis are presented in **Table 4.3-17:** *Estimated Maximum Daily Operational Criteria Air Pollutant Emissions—Unmitigated*. As indicated in **Table 4.3-17:** *Estimated Maximum Daily Operational Criteria Air Pollutant Emissions—Unmitigated*, the proposed Project would not exceed 100 pounds per day on-site for ROG, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during operation; therefore, the proposed Project would not require an ambient air quality assessment during operation.

Table 4.3-17: Estimated Maximum Daily Operational Criteria Air Pollutant Emissions – Unmitigated

Source	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds Per Day					
Summer						
Mobile	0.14	1.97	3.29	0.02	1.41	0.39
Area	1.59	0.02	2.31	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.73	1.99	5.60	0.02	1.41	0.39
Winter						
Mobile	0.13	2.13	2.24	0.03	1.41	0.39
Area	1.21	ND	ND	ND	ND	ND
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.33	2.13	2.24	0.02	1.41	0.39
SJVAPCD Threshold	*100*	*100*	*100*	*100*	*100*	*100*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Dudek 2025

Note: The values shown are the maximum summer or winter daily emissions results from CalEEMod.

Key: CO = carbon monoxide; ND = insufficient data available to determine the value; <0.01 = reported value less than 0.01; NO_x = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter; PM_{10} = coarse particulate matter; ROG = reactive organic compound; SJVAPCD = San Joaquin Valley Air Pollution Control District; <0.01 = reported value less than 0.01; SO_x = sulfur oxides

Midway Substation Upgrades

As described above in Impact 4.3-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the point-of-interconnection for the proposed Project. The modeling and analysis of the proposed Project's construction/decommissioning and

operational emissions described above included (but were not limited to) the emissions resulting from the Midway Substation upgrades.

The Midway Substation upgrades would include activities that would contribute to the proposed Project's generation of air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, architectural coatings, and asphalt pavement application, contributing to the PM_{10} and $PM_{2.5}$ construction/decommissioning emissions described above. However, these impacts would be reduced with implementation of the dust control strategies required to comply with SJVAPCD Regulation VIII during grading activities.

As shown in **Table 4.3-8:** *Estimated Annual Construction Criteria Air Pollutant Emissions—Unmitigated*, annual construction emissions that include the activities associated with the Midway Substation upgrades would not exceed the SJVAPCD significance thresholds for ROG, CO, SOx, or $PM_{2.5}$

Mitigation Measures

Implement Mitigation Measures MM 4.3-1 through MM 4.3-7, as described above.

Level of Significance after Mitigation

Construction emissions generated by the proposed Project and related projects would cumulatively combine and result in a temporary significant and unavoidable cumulative impact. Cumulative operational impacts would be less than significant.

Impact 4.3-3: Would the Project expose sensitive receptors to substantial pollutant concentrations?

Toxic Air Contaminants

The primary TAC of concern for the proposed Project would be DPM emitted within the Project site from the construction of the proposed Project. During operation, the proposed Project would not emit TAC emissions in substantial quantities, given that operational emissions would consist mostly of off-site, area source emissions from consumer products and from employees commuting. The proposed Project would result in new emissions of TACs of DPM from construction equipment exhaust and would be located near existing residents and workers; therefore, an assessment of the potential risk to the population attributable to emissions of TACs from the proposed Project is required.

An HRA was completed for the proposed Project as part of the air quality impact assessment using the HARP2 software distributed by CARB. The HRA evaluated the potential cancer risk and chronic noncancer risk from toxic emissions associated with construction of the proposed Project. There is no reference exposure level for acute health impacts from DPM and, thus, acute risk was not evaluated. Air dispersion modeling of DPM from construction equipment was conducted using emissions estimated using CalEEMod and a spreadsheet-based model, assuming emissions would occur 8 hours per day, 5 days per week. The Project site was modeled as a series of line-volume

sources. On-site emissions of vehicles were also included, assuming a 0.25-mile travel distance. Discrete receptors were placed over residences proximate to the proposed Project.

Results of the construction HRA are presented in **Table 4.3-18:** *Construction Health Risk Assessment Results—Unmitigated*. Additional methodological details and electronic modeling files for the construction HRA are provided in Appendix C.2.

Table 4.3-18: Construction Health Risk Assessment Results—Unmitigated

	Units	Value	SJVAPCD Significance Threshold	Is Threshold Exceeded?
Maximum Individual Cancer Risk - Residential	Per Million	2.0	20	No
Chronic Hazard Index - Residential	Index Value	0.001	1.0	No

Source: Dudek 2025

Key: SJVAPCD = San Joaquin Valley Air Pollution Control District

As shown in **Table 4.3-18:** *Construction Health Risk Assessment Results—Unmitigated*, proposed Project construction activities would result in a residential maximum individual cancer risk of 2.0 in 1 million, which is less than the significance threshold of 20 in 1 million. Proposed Project construction would result in a Residential Chronic Hazard Index of 0.001, which is below the 1.0 significance threshold. The proposed Project construction TAC health-risk impacts would be less than significant. **Table 4.3-19:** *Construction Health Risk Assessment Results—Mitigated*, shows the results of the construction HRA including implementation of Mitigation Measure MM 4.3-5.

Table 4.3-19: Construction Health Risk Assessment Results—Mitigated

	Units	Value	SJVAPCD Significance Threshold	Is Threshold Exceeded?
Maximum Individual Cancer Risk - Residential	Per Million	0.2	20	No
Chronic Hazard Index - Residential	Index Value	0.0001	1.0	No

Source: Dudek 2025

Key: SJVAPCD = San Joaquin Valley Air Pollution Control District

As shown in **Table 4.3-19:** *Construction Health Risk Assessment Results—Mitigated*, proposed Project construction activities would result in a residential maximum individual cancer risk of 0.2 in 1 million, which is less than the significance threshold of 20 in 1 million. Proposed Project construction would result in a Residential Chronic Hazard Index of 0.0001, which is below the 1.0 significance threshold. The proposed Project construction TAC health-risk impacts would be less than significant with implementation of Mitigation Measure MM 4.3-1 through Mitigation Measure MM 4.3-5.

During operation, the proposed Project would not emit TAC emissions in substantial quantities, given that operational emissions would consist mostly of off-site, area source emissions from consumer products and from employees commuting.

Criteria Air Pollutants

Sierra Club vs. County of Fresno (December 24, 2018)

In *Sierra Club v. County of Fresno* (S219783) (*Sierra Club*) the California Supreme Court held that CEQA requires environmental impact reports (EIRs) to either

1. make a "reasonable effort" to substantively connect the estimated amount of a given air pollutant a project will produce and the health effects associated with that pollutant, or
2. explain why such an analysis is infeasible (6 Cal.5th at 1165-66).

However, the Court also clarified that CEQA "does not mandate" that EIRs include "an in-depth risk assessment" that provides "a detailed comprehensive analysis … to evaluate and predict the dispersion of hazardous substances in the environment and the potential for exposure of human populations and to assess and quantify both the individual and population wide health risks associated with those levels of exposure." *Id.* at 1665. However, correlating the proposed project's criteria air pollutant to specific health impacts, particularly with respect to O_3 is not possible because there is no feasible or established scientific method to perform such analysis. This conclusion is supported by both the SJVAPCD and the SCAQMD, both of which have determined that this type of analysis is speculative and infeasible and there are no unique issues for the SJVAPCD that would make this analysis invalid.

Writing as amicus curiae in *Sierra Club*, the SJVAPCD explained that "[t]he health impact of a particular criteria pollutant is analyzed on a regional, and not a facility, level based on how close the area is to complying with (attaining) the [National Ambient Air Quality Standards (NAAQS)]. Accordingly, while the type of individual facility/health impact analysis that the Court of Appeal has required is a customary practice for TACs, it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task" (SJVAPCD 2015c).

Instead, the SJVAPCD explained that it assesses a project's potential to exceed NAAQS by evaluating the proposed project's compliance with district thresholds of significance, which are measured in mass emissions (SJVAPCD, 2015c). As explained by the SJVAPCD, its thresholds are based on factual, scientific data and have been set at a level that ensures that NAAQS will not be exceeded, taking into consideration all cumulative emission sources (SJVAPCD 2015c). The SJVAPCD explained that attempting to connect criteria pollutant emissions to localized health impacts will "not yield reliable information because currently available modeling tools are not well suited for this task" (SJVAPCD 2015c). Available models are only equipped to model the impact of all emissions sources on an air basin-wide or regional basis, not on a project-level basis, and "[r]unning the photochemical grid model used for predicting ozone attainment with emissions solely from one project would thus not be likely to yield valid information given the relative scale involved" (SJVAPCD 2015c).

This inability to "accurately ascertain local increases in concentration" of mass emissions and then to further link emissions with health effects is particularly true for O_3 and its precursors NO_X, ROG and VOC. Ozone is not directly emitted into the air but is instead formed as ozone precursors undergo complex chemical reactions through sunlight exposure (SJVAPCD 2015c). Given the complex nature of this process, and the fact that O_3 can be transported by wind over long distances, "a specific tonnage amount of NO_X or VOCs emitted in a particular area does not equate to a particular concentration of ozone in that area" (SJVAPCD 2015c). For this reason, the photochemical analysis for O_3 is done on a regional scale and it is inappropriate to analyze O_3 impacts at a local or project-level basis because a localized analysis would at most be speculative, and at worst be misleading. Speculative analysis is not required by CEQA (*CEQA Guidelines* Section 15145; *Laurel Heights Improvement Association v. Regents of the University of California 1988*).

The SJVAPCD also explained that the disconnect between the tonnage of precursor pollutants and the concentration of O_3, or particulate matter formed in a particular area, is especially important to understand in considering potential health effects because it is the concentration, not the tonnage, that causes health effects (SJVAPCD 2015c). The SJVAPCD explained that even if a model were developed that could accurately assess local increases in concentrations of pollutants like O_3 and particulates, it would still be "impossible, using today's models, to correlate that increase in concentration to a specific health impact" (SJVAPCD 2015c). The SJVAPCD stated that even a project with criteria pollutant emissions above its CEQA thresholds does not necessarily cause localized human health impacts as, even with relatively high levels of emissions, the SJVAPCD cannot determine "whether and to what extent emissions from an individual project directly impact human health in a particular area" (SJVAPCD 2015c). The SJVAPCD explained that this is particularly true for development projects like the proposed project, where most of the criteria pollutants derive from mobile and area sources and not stationary sources. The SCAQMD also, as amicus curiae in *Sierra Club*, made similar points, reiterating that "an agency should not be required to perform analyses that do not produce reliable or meaningful results" (SCAQMD 2015). The SCAQMD agrees that it is very difficult to quantify health impacts with regard to O_3, opining that the only possible means of successfully doing so is for a project so large that emissions would essentially amount to *all* regional increases (SCAQMD 2015). With regard to particulate matter, the SCAQMD noted that while the CARB has created a methodology to predict expected mortality from large amounts of $PM_{2.5}$, the primary author of the methodology has reported that it "may yield unreliable results due to various uncertainties" and the CARB staff has been directed by its Governing Board to reassess and improve it, which factor "also counsels against setting any hard-and-fast rule" about conducting this type of analysis (SCAQMD 2015). The amicus briefs filed by the SJVAPCD and SCAQMD in *Sierra Club* are attached as part of Appendix C.3 of this Draft EIR.

Ambient Air Quality

The EPA and ARB have established NAAQS at levels above which concentrations could be harmful to human health and welfare, with an adequate margin of safety. Further, California air districts, like the SJVAPCD, have established emission-based thresholds that provide project-level estimates of criteria air pollutant quantities that air basins can accommodate without affecting the attainment dates for the NAAQS. Accordingly, elevated levels of criteria air pollutants as a result

of a project's emissions could cause adverse health effects associated with these pollutants. The project site is located in the Kern County portion of the SJVAB, which is designated as an attainment area for O_3 (one- hour), PM_{10} and $PM_{2.5}$ and nonattainment for O_3 (eight-hour) under the NAAQS, and nonattainment for O_3, PM_{10}, and $PM_{2.5}$ under the CAAQS.

Project Health Effects of Criteria Air Pollutants

Regarding health effects of criteria air pollutants, the project's potential to result in regional health effects associated with ROG, NOx, $PM_{10,}$ and $PM_{2.5}$ on specific vulnerable populations cannot be calculated given existing scientific constraints. A scientific method to calculate the exact number of individuals in a vulnerable population that will get sick has not been developed; therefore, it is assumed localized health effects associated with NOx, PM_{10}, and $PM_{2.5}$ emissions from project implementation could occur. The project is the construction and operation of a new warehouse complex that would require dust-generating construction activities such as site preparation, mowing, paving, and grading, over a large area. Blowing dust could occur and result in the dispersal of criteria air pollutants such as $PM_{2.5}$ and potentially contribute to the transmission of respiratory diseases like COVID-19. While COVID-19 is thought to spread mainly through close contact from person to person, the CDC is still learning how the virus spreads and the severity of the illness it causes (CDC 2025a). A nationwide study by Harvard University found a linkage between long-term exposure to $PM_{2.5}$ as air pollution and statistically significant increased risk of COVID-19 death in the United States (Harvard 2020). While construction dust suppression measures would be implemented in Mitigation Measure MM 4.3-1 through MM 4.3-5, exposure to dust during construction could still occur which could increase the health susceptibility and increase the severity of the disease. In addition to the implementation of Mitigation Measures MM 4.3-1 through MM 4.3-10, the project would implement Mitigation Measure MM 4.3-11, which requires the implementation of a COVID-19 Health and Safety Plan in accordance with the Kern County Public Health Services Department and Kern County Health Officer mandates.

Therefore, implementation of Mitigation Measures MM 4.3-1 through MM 4.3-11 would be required to reduce the project's regional and localized health effects associated with criteria air pollutants and COVID-19; however, the exact reduction from implementation of these mitigation measures cannot be quantified given existing scientific constraints.

Carbon Monoxide Hotspots

Localized concentrations of CO are typically associated with the idling of vehicles, particularly in highly congested areas. For this reason, the areas of primary concern are congested roadway intersections that experience high levels of vehicle traffic with degraded levels of service (LOS). With regard to potential increases in CO concentrations that could potentially exceed applicable ambient air quality standards, signalized intersections that are projected to operate at an unacceptable LOS E or F are of particular concern.

The SJVAPCD Guidance for Assessing and Mitigating Air Quality Impacts states that a quantitative CO hotspots analysis be performed if either of the following two conditions exist:

> (1) a traffic study for the project indicates that the LOS on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F, or

(2) a traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at one or more intersections in the project vicinity.

The project would cause a temporary increase in traffic during the 60-month construction period. However, the project would only result in 40 additional daily trips (20 personnel) during operation plus a conservative assumption of approximately 9 truck deliveries per day. Therefore, the project would not materially contribute to the local traffic or impact local intersections' LOS.

Valley Fever

The *Coccidioides immitis* fungus spores in soil, which are responsible for transmitting Valley Fever, can disperse in the air when the soil is disturbed during construction activities, and then can be inhaled into the lungs. On-site construction workers could potentially be exposed to Valley Fever from fugitive dust generated during construction of the proposed Project, notably during excavation, grading, and other earth-moving activities. While there are no specific thresholds for the evaluation of potential *Coccidioides immitis* exposure, the potential for workers or area residents contracting Valley Fever as a result of the proposed Project is evaluated based on the anticipated earth-moving activities, and considers applicant-proposed measures and compliance with Rule 8021, Section 6.3, which requires development and implementation of a dust control plan to help control the release of the *Coccidioides immitis* fungus during construction activities. Construction activities within the Project site are subject to SJVAPCD Regulation VIII (Fugitive PM_{10} Prohibition). Regulation VIII is intended to reduce ambient concentrations of PM_{10} by requiring actions to prevent, reduce, or mitigate anthropogenic fugitive dust emissions. By reducing fugitive dust emissions, Mitigation Measure MM 4.3-2 reduces potential exposure to Valley Fever. With the implementation of Mitigation Measures MM 4.3-8 and MM 4.3-9, the potential for the release of *Coccidioides immitis* spores, if present, and the associated potential for workers or nearby residents to contract Valley Fever would be minimized. Additionally, Mitigation Measure MM 4.3-10 would require a one-time fee of $3,200 to be paid to the Kern County Public Health Services Department Valley Fever public awareness programs. With the implementation of mitigation measures, the proposed Project would not add significantly to the existing exposure level of construction workers or nearby residences to the *Coccidioides immitis* fungus.

Asbestos

Serpentine and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties associated with the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. However, according to information provided by the Department of Conservation Division of Mines and Geology, the project site is not in an area likely to contain ultramafic rock or naturally occurring asbestos (Churchill and Hill 2000).

There are buildings on the Project site that could contain asbestos, given the age of the structures. Consistent with Federal regulations, asbestos and ACMs are deemed to be present in all structures that have not been tested. In compliance with SJVAPCD Rule 4002 (National Emission Standards for Hazardous Air Pollutants), these materials must be removed by a licensed and registered asbestos abatement contractor prior to demolition. All laws applicable to asbestos abatement will be followed during the demolition of the existing buildings. These laws address safe handling and

disposal such that construction workers and those in the surrounding community are not adversely affected. Adherence to procedures outlined in the laws and MM 4.3-1 would ensure that there would no significant impact from asbestos due to the demolition. Therefore, impacts associated with exposure of construction workers and nearby sensitive receptors to asbestos would be less than significant.

COVID

A public health emergency (PHE) was initially declared by the Secretary of the Department of Health and Human Services (HHS) in late January 2020, pursuant to Section 319 of the Public Health Service Act. A PHE lasts for 90 days and must be renewed to continue; the PHE for COVID-19 was renewed several times, most recently in February 2023, and is currently expired on May 11, 2023. A national emergency declaration was issued in March of 2020, pursuant to Section 201 of the National Emergencies Act, and expired on May 11, 2023. However, Mitigation Measure MM 4.3-11 would require a COVID Health and Safety Plan outlining best practices to prevent and respond to COVID outbreaks.

Midway Substation Upgrades

As described above in Impact 4.3-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. The modeling and analysis of the proposed Project's construction/decommissioning and operational emissions described above included (but were not limited to) the emissions resulting from the Midway Substation upgrades.

As shown in **Table 4.3-18:** *Construction Health Risk Assessment Results—Unmitigated*, and **Table 4.3-19:** *Construction Health Risk Assessment Results—Mitigated*, proposed Project construction activities would result in a residential maximum individual cancer risk of 2.0 in 1 million, which is less than the significance threshold of 20 in 1 million. Proposed Project construction would result in a Residential Chronic Hazard Index of 0.001, which is below the 1.0 significance threshold. The proposed Project construction TAC health-risk impacts, including those associated with the Midway Substation upgrades, would be less than significant and further reduced with implementation of Mitigation Measure MM 4.3-4 and MM 4.3-5. Further, during operation, the proposed Project would not emit TAC emissions in substantial quantities, given that operational emissions would consist mostly of off-site, site area source emissions from consumer products and from employees commuting.

As stated above, there are no specific thresholds for the evaluation of potential *Coccidioides immitis* exposure; however, ground disturbance activities including, but not limited to, those associated with the Midway Substation upgrades could expose people to *Coccidioides immitis.* However, compliance with SJVAPCD Regulation VIII (Fugitive PM_{10} Prohibition) and implementation of Mitigation Measure MM 4.3-8 and Mitigation Measure MM 4.3-9, would reduce exposure and minimize corresponding impacts associated with Valley Fever.

Mitigation Measures

Mitigation Measure MM 4.3-1 through MM 4.3-7, as described above, and the following.

MM 4.3-8: Prior to issuance of grading permits and ground disturbance activities, the project proponent shall submit to the Kern County Public Health Services Department for review and approval a Valley Fever Dust Management Plan that addresses the potential presence of *Coccidioides immitis* spores and mitigates for the potential for *Coccidioidomycosis* (Valley Fever). The Plan shall include a program to evaluate the potential for exposure to Valley Fever from construction activities and to identify safety procedures that shall be implemented, as needed, to minimize personnel and public exposure to potential *Coccidioides immitis* spores. Measures in the Plan shall include the following:

a. In consultation with the Kern County Public Health Services Department, the development of a Valley Fever Awareness handout for on-site workers and surrounding residents within 1,000 feet of the project site. The Valley Fever Awareness handout shall include the following information:

    1. Potential sources/ causes of Valley Fever;
    2. Common symptoms of Valley Fever;
    3. Methods that may help prevent Valley Fever infection;
    4. Options or remedies available should someone be experiencing symptoms of Valley Fever; and
    5. Where testing for exposure is available.

No less than 30 days prior to any work commencing, this handout shall be mailed to all existing residences within 1,000 ft. of the project boundaries.

b. To the greatest extent feasible, provide High-Efficiency Particulate Air filters for heavy equipment equipped with factory enclosed cabs capable of accepting the filters. Require contractors utilizing applicable heavy equipment to furnish proof of worker training on proper use of applicable heavy equipment cabs, such as turning on air conditioning prior to using the equipment.

c. Provide communication methods, such as two-way radios, for use in enclosed cabs.

d. Require National Institute for Occupational Safety and Health- approved half-face respirators equipped with minimum N-95 protection factor for personnel use during surface disturbance activities, as required per the hazard assessment process.

e. If respiratory protection is deemed necessary, the project proponent must develop and implement a respiratory protection program in accordance with Cal/OSHA's Respiratory Protection standard (8 CCR 5144), including but not

limited to, employees to be medically evaluated, fit-tested, and property trained on the use of respirators.

f. In consultation with Kern County Public Health Services Department, a protocol to medically evaluate employees who develop symptoms of Valley Fever.

g. Install equipment inspection stations at each construction equipment access/egress point. Examine construction vehicles and equipment for excess soil material and clean, as necessary, before equipment is moved off-site.

h. Wherever possible, grading and trenching work shall be phased so that earth-moving equipment is working well ahead or downwind of workers on the ground.

i. The area immediately behind grading or trenching equipment shall be sprayed with water before ground workers move into the area.

j. In the event that a water truck runs out of water before dust is sufficiently dampened, ground workers being exposed to dust shall leave the area until a truck can resume water spraying.

k. Provide separate, clean eating areas with hand-washing facilities.

l. Prohibit smoking at the worksite outside of designated smoking areas; designated smoking areas will be equipped with hand-washing facilities.

MM 4.3-9: Prior to issuance of grading permits and ground disturbance activities, the project proponent shall provide evidence to the Kern County Planning and Natural Resources Department that the project operator and/or construction manager has developed a Valley Fever Awareness Training and schedule of sessions for education to be provided to all construction personnel. Training shall include:

- Measures within the approved Valley Fever Dust Management Plan;
- Potential sources/causes of Valley Fever;
- Recognition of symptoms of Valley Fever;
- Methods that may help prevent Valley Fever infection;
- Proper use of Personal Protective Equipment;
- Promptly report suspected symptoms of work-related Valley Fever to a supervisor;
- Options or remedies available should someone be experiencing symptoms of Valley Fever; and
- Where testing for exposure is available.

All evidence of the training session materials, handout(s) and schedule shall be submitted to the within 24 hours of the first training session. Multiple training

sessions may be conducted if different work crews will come to the site for different stages of construction; however, all construction personnel shall be provided training prior to beginning work. The training may be administered using video or other electronic media. Evidence submitted to the Kern County Planning and Natural Resources Department regarding the Valley Fever Awareness Training shall include the following:

a. A sign-in sheet(s) (to include the printed employee names, signature, and date) for all employees who attended the training session.

b. A copy of the Valley Fever Awareness handout developed as part of the Valley Fever Dust Management Plan to be distributed.

c. Evidence of employee training on the proper use of personal protective equipment may be via printed training materials/agenda, DVD, digital files, or photographs.

Evidence of training shall be provided to the Kern County Planning and Natural Resources Department within 5 days after the training session.

MM 4.3-10: Prior to the issuance of grading permits, a one-time fee shall be paid to the Kern County Public Health Services Department in the amount of $3,200 for Valley Fever public awareness programs.

MM 4.3-11: At the time of project implementation, a COVID-19 Health and Safety Plan should be prepared in accordance with the Kern County Public Health Services Department and Kern County Health Officer mandates. A copy of the COVID-19 Health and Safety Plan shall be submitted to the Kern County Planning and Natural Department for review and approval.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.3-4: Would the Project result in other emissions such as those leading to odors adversely affecting a substantial number of people?

Section 8.6 of the SJVAPCD's GAMAQI states:

An analysis of potential odor impacts should be conducted for both of the following two situations:

1. *Generators – projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate, and*
2. *Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.*

The GAMAQI also states that the SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJVAB. Land uses that typically produce objectionable odors include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding.

The SJVAPCD has also identified a reasonable distance from the source within which the degree of odors from each type of facility could possibly be significant. The lowest of these screening distances is 1 mile. The closest sensitive receptor to the Project site is a single-family dwelling, located within the proposed Project boundary, and the nearest off-site sensitive receptor is a residence located approximately 50 feet east of Site 5. The nearest school is Buttonwillow Union School, located approximately 1 mile west/southwest of the Project site.

Although sensitive receptors are located within 1 mile of the Project site, the proposed Project would not include any land uses that would generate objectionable odors during construction, demolition, and/or operation. Odors would come predominantly from construction and decommissioning equipment and vehicle exhaust during proposed Project construction and decommissioning activities. Potential odors produced during construction and decommissioning would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction and decommissioning equipment. Although the nearest sensitive receptors are located within 50 feet of the Project site, construction and decommissioning equipment would not remain in one location for an extended period. Odors would disperse rapidly from the Project site and generally would occur at magnitudes that would not affect substantial numbers of people. Furthermore, the proposed Project would be required to comply with CCR, Title 13, Sections 2449(d)(3) and 2485, which minimizes the idling time of construction and decommissioning equipment either by shutting it off when not in use or by reducing the time of idling to no more than 5 minutes. This would further reduce the detectable odors from heavy-duty equipment exhaust. Construction- and decommissioning-related odors would be short-term and cease upon project completion.

Midway Substation Upgrades

As described above in Impact 4.3-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the point-of-interconnection for the proposed Project. The analysis of the proposed Project's impacts associated with odors described above included (but was not limited to) the potential odors resulting from the Midway Substation upgrades.

Development and decommissioning of the Midway Substation upgrades would be located approximately 1,000 feet east of residences located within Buttonwillow and approximately 4,500 feet east of Buttonwillow Union School. However, as stated above, operational activities would not generate odors, and odors from construction and decommissioning activities would be temporary,

disperse rapidly from the Midway Substation site, and be minimized given the requirements of CCR, Title 13, Sections 2449(d)(3) and 2485.

Summary

Therefore, the proposed Project is not expected to result in adverse emissions affecting a substantial number of people. Impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Less than significant.

4.3.5 Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

The Kern County Planning Department's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* (2006) requires a cumulative air quality assessment to consider localized impacts, determine consistency with existing air quality plans, and provide SJVAB and Kern County emission comparison tables. In addition, the SJVAPCD's *Guidance for Assessing and Mitigating Air Quality Impacts* (2015a) recommends accessing cumulative impacts by evaluating past, present, and reasonably foreseeable projects in the future that may impact air quality in correlation with the proposed Project. The State CEQA Guidelines (Section 15355) define "cumulative impacts" as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The evaluation of cumulative impacts regarding NO_x, ROG, CO, PM_{10}, and TACs are provided above.

The geographic extent for considering cumulative regional air quality impacts included Kern County as well as the SJVAB, within which the proposed Project is located. More specifically, pursuant to Kern County's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports*, the assessment included projects located within a 1-mile and 6-mile radius of the project boundaries, as well as similar development projects located within the SJVAB. Every attempt to acquire and quantify the corresponding emissions for these projects was made, based on available environmental documentation at the time this report was prepared. However, no emissions data or estimated periods of construction and operation for these projects were available.

As discussed above, the proposed Project-level emissions of ROG, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ during construction are below SJVAPCD's significance thresholds, with implementation of Mitigation Measures MM 4.3-1 through MM 4.3-5. As such, it was determined that the proposed Project would not obstruct SJVAPCD's ability to achieve further progress toward attainment of the state standards. However, potential temporary cumulative impacts to air quality could occur from

construction of the proposed Project in combination with regional growth projections and other projects within 6 miles of the proposed Project in the same air basin. Potential cumulative impacts are evaluated below.

As discussed above in Impact 4.3-2, air pollution is largely a cumulative impact. Most projects by themselves do not produce significant air quality impacts; however, when combined with the air quality impacts of other projects, a project can make a cumulatively considerable contribution to significant cumulative air quality impacts.

The nonattainment status of regional pollutants is a result of past and present development. Future attainment of state and federal ambient air quality standards is a function of successful implementation of the SJVAPCD's attainment plans. Consequently, the SJVAPCD's application of thresholds of significance for criteria pollutants is relevant to the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality.

The potential for the proposed Project's emissions to cause a cumulatively considerable net increase of criteria pollutants for which the SJVAPCD is in nonattainment is discussed in Impact 4.3-2. However, the Kern County Air Quality Assessment Guidelines further require the cumulative air quality impact assessment to include consideration of impacts involving the following:

- Consistency with Existing Air Quality Plans. Discuss the project in relation to Kern COG conformity and TAZs. Quantify emissions from similar projects and evaluate consistency with the applicable attainment plan.
- Localized Impacts. Assess the cumulative emissions impact associated with the proposed Project, in conjunction with approved and proposed projects located within a 1- and 6-mile radius of the proposed Project.
- Air Basin Emissions Analysis. Compare emissions from the proposed Project to emissions within the SJVAB and the Kern County portion of the SJVAB.

The following includes an analysis of impacts associated with the items listed above.

Consistency with Existing Air Quality Plans

The proposed Project's consistency with the existing air quality plan is discussed under Impact 4.3-1, above. As described above, the proposed Project's impacts would be less than significant regionally.

Localized Impacts

Efforts to reduce emissions in the Kern region that have been conducted since the early 1990s at the national, state, regional, and local levels are presented in **Table 4.3-20:** *Programs Designed to Reduce Air Pollutant Emissions*. The agencies involved are the EPA, U.S. Department of Energy, Federal Highway Administration, Federal Transit Administration, CARB, California Department of Transportation, California Energy Commission, SJVAPCD, Eastern Kern APCD, and Kern COG and its local member agencies.

Table 4.3-20: Programs Designed to Reduce Air Pollutant Emissions

Level	Program
National	▪ Corporate Average Fuel Economy Standards ▪ Fuel Pricing ▪ Locomotive Idling Reduction ▪ Locomotive Replacement or Repowering ▪ Transportation Construction Equipment Reductions
State	▪ AB 118 – Air Quality Improvement Program ▪ AB 2766 – Motor Vehicle Fee Program ▪ CalStart ▪ Cap-and-Trade Program ▪ Clean Diesel ▪ Clean Vehicle Rebate Project ▪ High-Occupancy Vehicle Facilities ▪ Incident management/Kern 511 Traveler Information ▪ Inspection & Maintenance Programs ▪ Moyer Program ▪ Park-and-Ride Facilities ▪ Shifting/Separation Freight Movements ▪ Signal Synchronization and Roadway Intersection Improvements
Regional	▪ CalVans Vanpool Program ▪ Commute Kern TDM Programs/Incentives ▪ Diesel Engine Retrofits Incentive Program ▪ Drive Clean Rebate Program ▪ IdleAIR Idling Reduction Facilities ▪ PCA ▪ REMOVE II Programs ▪ Retirement/Replacement of Heavy-Duty Trucks Incentives Program ▪ Rule 8061 (SJVAPCD) Unpaved Road Dust Mitigation ▪ Rule 9310 (SJVAPCD) School Bus Fleets: Retirement/Replacement of Buses ▪ Rule 9410 (SJVAPCD) eTRIP ▪ Rule 9510 (SJVAPCD) Indirect Source Review: Infill Incentive Zone Transportation Impact Fee Land Use Strategies ▪ Valley CAN
Local	▪ Bicycle/Pedestrian Projects and Programs ▪ GET Online Trip Planner Transit Marketing, Information, and Amenities ▪ New/Expanded/Increased Transit Services ▪ Road Paving & Street Sweeping

Key: AB = Assembly Bill; CAN = Clean Air Now; eTRIP = Employer-based Trips Reduction; PAC = Project Clean Air; SJVAPCD = San Joaquin Valley Air Pollution Control District; TDM = Transportation Demand Management

As discussed above, estimated Project-level emissions of ROG, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ during both construction and operation are below SJVAPCD's significance thresholds with the implementation of Mitigation Measures MM 4.3-1 through MM 4.3-5. However, it was determined that the proposed Project could cumulatively combine and result in a temporary significant and unavoidable cumulative local impact.

Air Basin Emissions Analysis

To evaluate the contribution of the proposed Project's total emissions relative to the cumulative air quality conditions in Kern County and the SJVAB, the proposed Project's specific emissions are compared to the 2020 emissions inventory and the 2025 projected emissions of Kern County and the SJVAB. **Table 4.3-21:** *Comparative Analysis Based on San Joaquin Valley Air Basin 2020 Inventory*, provides the emissions comparison of the proposed Project with Kern County and SJVAB in 2020, and **Table 4.3-22:** *Comparative Analysis Based on San Joaquin Valley Air Basin 2025 Projection*, provides the emissions comparison of the proposed Project with Kern County and SJVAB in 2025.

As shown in **Table 4.3-21:** *Comparative Analysis Based on San Joaquin Valley Air Basin 2020 Inventory*, and **Table 4.3-22:** *Comparative Analysis Based on San Joaquin Valley Air Basin 2025 Projection*, the proposed Project would contribute up to 1.3 percent of PM_{10} emissions in the county in 2025, and would contribute approximately 0.25 percent of PM_{10} emissions to the SJVAB in 2025. Additional pollutants emitted account for less than 1 percent of their respective emission totals. Therefore, cumulative impacts for criteria pollutants would be considered less than significant.

TACs and Odors

As stated above, the proposed Project would not generate TACs that could pose a substantial, individual cancer risk to residents or others located within the vicinity of the Project site. In addition, given the distances between the projects included in the analysis of cumulative impacts in relation to the location of sensitive receptors, the dispersion of air emissions, and implementation of MM 4.3-1 through MM 4.3-5, the proposed Project construction activities do not have the potential for a considerable contribution to a significant cumulative impact involving the exposure of sensitive receptors to TACs. Further, during operation, the proposed Project would not emit TAC emissions in substantial quantities which would be cumulatively considerable, given that operational emissions would consist mostly of off-site, area source emissions from consumer products and from employees commuting.

As stated above, there are no specific thresholds for the evaluation of potential *Coccidioides immitis* exposure; however, ground disturbance activities associated with the proposed Project and projects included in the analysis of cumulative impacts could expose people to *Coccidioides immitis.* Compliance with SJVAPCD Regulation VIII (Fugitive PM_{10} Prohibition) and implementation of Mitigation Measure MM 4.3-8 through MM 4.3-10 would reduce exposure and minimize corresponding impacts associated with Valley Fever.

Finally, although sensitive receptors are located within 1 mile of the Project site, the proposed Project would not include any land uses that would generate objectionable odors that could be combined with odors from other projects included in the analysis of cumulative impacts.

Midway Substation Upgrades

As described above in Impact 4.3-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. The analysis of the proposed Project's air quality impacts described above included (bus was not limited to) the potential air quality impacts resulting from the Midway Substation upgrades.

As discussed above, the proposed Project-level emissions including, but not limited to, those resulting from the Midway Substation upgrades, involving ROG, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ during both construction and operation are below SJVAPCD's significance thresholds , and implementation of Mitigation Measures MM 4.3-1 through MM 4.3-5 would further reduce impacts below these thresholds. As such, it was determined that the proposed Project would not obstruct SJVAPCD's ability to achieve further progress toward attainment of the state standards. PG&E should implement Mitigation Measures MM 4.3-1 through MM 4.3-5 as applicable to the activities that are involved with the Midway Substation upgrades so as not to obstruct SJVAPCD's ability to achieve further progress toward attainment of the state standards.

Finally, regarding SJVAB emissions, Midway Substation upgrades along with all other components of the proposed Project would contribute up to 1.3 percent of the pollutants in the county in 2020, and the proposed Project would contribute up to 1.3 percent of these pollutants in the county in 2025, which would not be cumulatively considerable.

Summary

With the implementation of Mitigation Measures MM 4.3-1 through MM 4.3-11, the proposed Project would not make a cumulatively considerable contribution to a significant cumulative impact regarding air quality**.**

Mitigation Measures

Implement Mitigation Measures MM 4.3-1 through MM 4.3-11, as described above.

Level of Significance after Mitigation

Construction emissions generated by the proposed Project and related projects could cumulatively combine and result in a temporary significant and unavoidable cumulative impact. Cumulative operational impacts would be less than significant.

Table 4.3-21: Comparative Analysis Based on San Joaquin Valley Air Basin 2020 Inventory

Emissions Source	Emissions (Tons/Year)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Project Emissions						
Year 1 Construction Total	0.25	1.65	7.03	0.01	8.39	0.97
Year 2 Construction Total	0.85	5.30	22.14	0.04	25.43	2.99
Year 3 Construction Total	0.40	3.24	12.60	0.03	16.56	1.89
Year 4 Construction Total	0.92	6.72	19.59	0.04	26.72	3.18
Year 5 Construction Total	0.89	5.16	19.21	0.04	29.03	3.44
Year 6 Construction Total	0.37	1.99	8.09	0.02	12.88	1.52
Project Operation	0.27	0.38	0.66	0.00	0.25	0.07
Year 1 Decommissioning Total	0.07	0.57	2.98	0.01	4.36	0.51
Year 2 Decommissioning Total	0.46	3.59	17.97	0.04	27.96	3.28
Year 3 Decommissioning Total	0.37	3.02	12.22	0.03	25.58	3.00
Total Project Emissions	4.85	31.62	122.49	0.26	177.16	20.85
Kern County and San Joaquin Valley Air Basin Emissions						
Kern County – 2020	21,535	15,878	27,337	511	13,651	3,723
San Joaquin Valley Air Basin - 2020	108,113	74,205	162,425	2,847	69,652	21,535
Analytical Results						
Proposed Project Percent of Kern County	0.02%	0.20%	0.45%	0.05%	1.30%	0.56%
Proposed Project Percent of SJVAB	<0.01%	0.04%	0.08%	0.01%	0.25%	0.10%

Key: CO = carbon monoxide; NO_X = oxides of nitrogen; $PM_{2.5}$ = particulate matter less than 2.5 microns; PM_{10} = particulate matter less than 10 microns; ROG = reactive organic compound; SJVAB = San Joaquin Valley Air Basin; SO_2 = sulfur dioxide

Table 4.3-22: Comparative Analysis Based on San Joaquin Valley Air Basin 2025 Projection

Emissions Source	Emissions (Tons/Year)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Project Emissions						
Year 1 Construction Total	0.25	1.65	7.03	0.01	8.39	0.97
Year 2 Construction Total	0.85	5.3	22.14	0.04	25.43	2.99
Year 3 Construction Total	0.4	3.24	12.6	0.03	16.56	1.89
Year 4 Construction Total	0.92	6.72	19.59	0.04	26.72	3.18
Year 5 Construction Total	0.89	5.16	19.21	0.04	29.03	3.44
Year 6 Construction Total	0.37	1.99	8.09	0.02	12.88	1.52
Project Operation	0.27	0.38	0.66	0	0.25	0.07
Year 1 Decommissioning Total	0.07	0.57	2.98	0.01	4.36	0.51
Year 2 Decommissioning Total	0.46	3.59	17.97	0.04	27.96	3.28
Year 3 Decommissioning Total	0.37	3.02	12.22	0.03	25.58	3
Total Project Emissions	4.85	31.62	122.49	0.26	177.16	20.85
Kern County and San Joaquin Valley Air Basin Emissions						
Kern County – 2025	21,353	10,804	26,674	475	13,651	3,687
San Joaquin Valley – Air Basin - 2025	107,347	52,451	145,964	2,920	95,922	21,280
Analytical Results						
Proposed Project Percent of Kern County	0.02%	0.29%	0.46%	0.05%	1.30%	0. 57%
Proposed Project Percent of SJVAB	<0.01%	0.06%	0.08%	0.01%	0.18%	0.10%

Key: CO = carbon monoxide; NO_X = oxides of nitrogen; $PM_{2.5}$ = particulate matter less than 2.5 microns; PM_{10} = particulate matter less than 10 microns; ROG = reactive organic compound; SJVAB = San Joaquin Valley Air Basin; SO_2 = sulfur dioxide

Section 4.4

Biological Resources

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Section 4.4
Biological Resources

4.4.1 Introduction

This section of the Draft Environmental Impact Report (EIR) describes the affected environment and regulatory setting for biological resources either present or with the potential to be present on the Project site. It also describes the impacts related to biological resources that would result from implementation of the proposed Buttonbush Solar and Storage Project (proposed Project).

This section includes the physical and regulatory setting for the proposed Project; an evaluation of the existing biological conditions of the Project site and its vicinity; the criteria used to evaluate the significance of potential impacts to biological resources; the methods used in evaluating these potential impacts; an analysis of potential impacts; and proposed Project-specific mitigation. The analysis presented in this section is based on biological surveys of the Project site and buffer areas, including reconnaissance and focused biological surveys including rare plant surveys, burrow mapping, a San Joaquin antelope squirrel (*Ammospermophilus nelsoni*) focused survey, Swainson's hawk (*Buteo swainsoni*) habitat assessment, vernal pool fairy shrimp (*Branchinecta lynchi*) habitat assessment, small mammal trapping, and camera studies for Buena Vista Lake ornate shrew (*Sorex ornatus relictus*), which were conducted in 2022 through 2024. Burrow mapping included a habitat assessment for blunt-nosed leopard lizard (*Gambelia sila*), burrowing owl (*Athene cunicularia*), San Joaquin kit fox (*Vulpes macrotis mutica*), and American badger (*Taxidea taxus*). The specific research methodology and survey protocol data is provided in the *Buttonbush Solar and Storage Project Biological Resources Technical Report* (Dudek 2025a) located in Appendix D.2 of this Draft EIR, and the *Biological Resources Habitat Assessment Buttonbush Solar and Storage Project —Midway Substation* (Dudek 2024) located in Appendix D.5 of this Draft EIR.

An aquatic resources jurisdictional delineation was conducted in 2023 and 2024. Vegetation mapping was conducted concurrently with the aquatic resources jurisdictional delineation. The specific research methodology and survey protocol data is provided in the *Buttonbush Solar and Storage Project Aquatic Resources Delineation Report* (Dudek 2025b) located in Appendix D.4 of this Draft EIR.

A literature review was performed that included information in standard reference materials and relevant databases, including the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) (CDFW 2025), CDFW Biogeographic Information and Observation System Habitat Connectivity Viewer (CDFW n.d.), the CNPS Rare Plant Inventory (CNPS 2024), and the U.S. Fish and Wildlife Service (USFWS) Threatened and Endangered Species Database and Critical Habitat Portal (USFWS 2025). Potential and/or historical drainages and aquatic features were investigated based on a review of USGS topographic maps (1:24,000 scale), aerial photographs, the USFWS National Wetland Inventory database (USFWS 2024), and the Natural Resource Conservation Service's Web Soil Survey (USDA 2024). For wildlife

movement, the following references were reviewed: Caltrans et al. (2010), Penrod et al. (2012), and South Coast Wildlands (2008).

A description of the environmental setting (affected environment) for biological resources is presented below in 4.4.2, Environmental Setting. The regulatory setting applicable to biological resources is presented in Section 4.4.3, *Regulatory Setting*, and Section 4.4.4, *Impacts and Mitigation Measures*, discusses project impacts and associated mitigation measures.

4.4.2 Environmental Setting

Regional Setting

The proposed Project is located within unincorporated Kern County, directly north of the community of Buttonwillow, approximately four miles west of the City of Bakersfield, two miles west of the City of Shafter, and approximately seven miles southwest of the City of Wasco. (Chapter 3, *Project Description*, **Figure 3-1:** *Regional Vicinity*). The Project site is located primarily on relatively flat terrain, currently either used for agricultural operations and/or vacant undisturbed land designated for agricultural use.

The Project site is situated in the Great Valley geomorphic province, an expansive alluvial plain in central California, spanning about 50 miles in width and 400 miles in length. The northern section, known as the Sacramento Valley, is drained by the Sacramento River, while the southern section, the San Joaquin Valley, is drained by the San Joaquin River. This valley is a trough where marine and continental sediments have been continuously deposited since the Jurassic Period, approximately 160 million years ago. These sediment layers increase in thickness towards the west, reaching up to 20,000 feet on the western side of the San Joaquin Valley syncline. Significant oil fields are located in the southernmost part of the San Joaquin Valley and along anticlinal uplifts on its southwestern edge. In the Sacramento Valley, the Sutter Buttes, remnants of an isolated Pliocene volcano, rise above the valley floor.

The southern San Joaquin Valley is bounded by the Temblor Range on the west, San Emigidio Mountains at the southernmost tip, and the Tehachapi Mountains on the east. The San Emigidio Mountains are notable for the San Andreas and Garlock Faults, which intersect about 50 miles southeast of the proposed Project site.

Topography

The proposed Project is situated in the southern portion of the San Joaquin Valley. The southern Sierra Nevada foothills are east of the Project site, and the Temblor Range of the Southern Coast Range lies to the west. The topography of the Project site is relatively flat throughout with elevations ranging from approximately 250 feet above mean sea level (AMSL) in the northwest to approximately 320 feet AMSL in the southeast.

Climate

The proposed Project is located in a region characterized by a typical Mediterranean climate of hot summers and mild, wet winters. Average high temperatures range from 57 degrees Fahrenheit (°F) in January to 100°F in July, with daily temperatures exceeding 100°F several days in the summer. Average low temperatures range from 41°F in December to 67°F in July. Precipitation occurs primarily as rain, most of which falls from December to April, with an average of 5.4 inches of rainfall per year. Precipitation may also occur as a dense fog known as "Tule fog" during the winter months. Rain rarely falls during the summer months.

Land Use

The area around the Project site and gen-tie routes is primarily characterized by both active and dormant agricultural fields. The immediate vicinity of the Project site features a mix of undeveloped lands, agricultural lands, access roadways, and the California Aqueduct.

Watershed Hydrology

The Project site is situated within the Regional Water Quality Control Board (RWQCB)-defined San Joaquin Hydrologic Basin in the South Valley Hydrologic Unit (557.00; 558.00), and the Semitropic Hydrologic Area (558.70) and the Kern Delta Hydrologic Area (557.10)

The Project site also occurs within the Tulare–Buena Vista Lakes (Hydrologic Unit Code [HUC] 6 [180300]), Lake Bed (HUC 8 [18030012]), and the Upper Poso (HUC 8 [18030004]) watersheds and the following subunits: West Side Canal (HUC 10 [1803001209]), Goose Lake Slough-Jerry Slough (HUC 10 [1803001208]), and Lower Poso Creek (HUC 10 [1803000404]).

Vegetation

Vegetation in the Great Valley region where the proposed Project is located is influenced by arid climatic conditions, topography, desert soils, and past land uses. Vegetation in the region includes a predominance of plant morphological adaptations to extreme aridity (for example, waxy or resinous leaf cuticles, drought deciduous or succulent plants, woolly leaf pubescence, deep tap root systems) and saline-alkali soils (for example, salt excretion, active transport systems). Vegetation structure is characterized by short-statured and widely spaced shrubs, and arborescent shrubs resulting from competition for soil water resources.

Wildlife

The San Joaquin Valley supports a variety of reptiles, birds, and mammals. Reptile species commonly occurring in the San Joaquin Valley portion of Kern County include the side-blotched lizard (*Uta stansburiana*), western whiptail (*Aspidoscelis tigris munda*), and gopher snake (*Pituophis melanoleucus*). Bird species common to the region include common raven (*Corvus corax*), horned lark (*Eremophila alpestris*), western meadowlark (*Sturnella neglecta*), house finch (*Haemorhous mexicanus*), and red-tailed hawk (*Buteo jamaicensis*). Mammal species typical of the area include California ground squirrel (*Otospermophilus beecheyi*), coyote (*Canis latrans*), black-tailed jackrabbit (*Lepus californicus*), and bat species including Yuma myotis (*Myotis yumanensis*).

Sensitive Natural Communities

Sensitive natural communities are designated by CDFW, or occasionally in local policies and regulations, and are generally considered to have important functions or values for wildlife and/or are recognized as declining in extent and/or distribution. These communities are considered threatened enough to warrant some level of protection. Sensitive habitats and vegetation communities are those that are considered rare in the region, support special-status plant or animal species, or receive regulatory protection, including those that are of special concern to resource agencies or are afforded specific consideration pursuant to the California Environmental Quality Act (CEQA). In addition, vegetation communities listed by CDFW as having the highest inventory priorities are considered sensitive. CDFW tracks communities it believes to be of conservation concern through the CNDDB, and plant alliances or associations with a state rank of S1 through S3 are considered to be sensitive communities by the State.

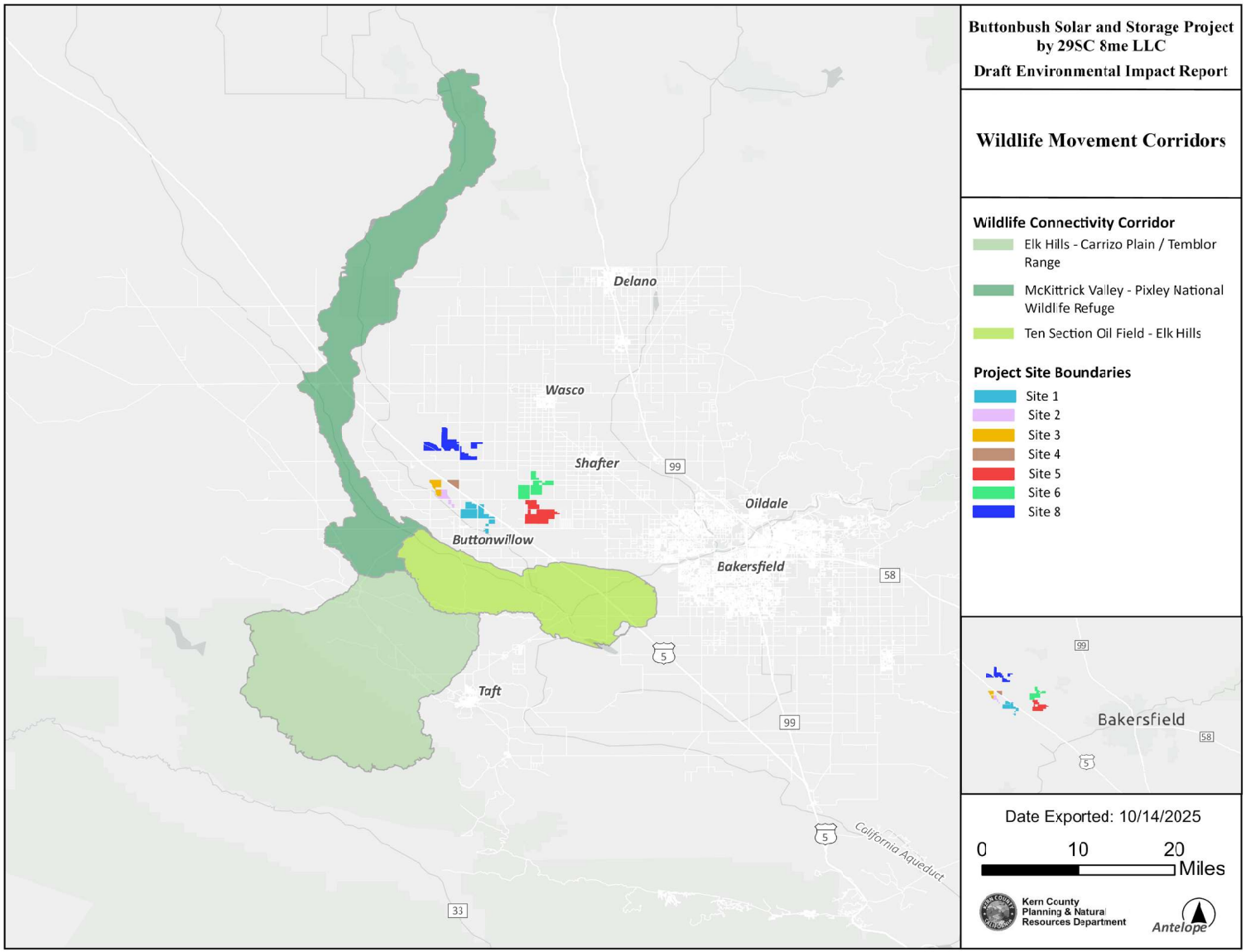
Wildlife Movement Corridors

Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. Wildlife movement corridors can be large tracts of land that connect regionally important habitats that support wildlife in general and include stop-over habitat for migrating birds (for example, the Pacific Flyway in which the Project site is located) or large contiguous natural habitats that support animals with very large home ranges. Movement corridors can also be small scale, such as riparian zones that provide connectivity and cover to support movement at a local scale. In the San Joaquin Valley, a regional wildlife movement corridor is defined as major rivers that provide connection between the mountains and the San Joaquin and Kern Rivers.

The proposed Project is not situated within identified connectivity corridors. The nearest Essential Connectivity Areas, including Elk Hills - Carrizo Plain/Temblor Range, McKittrick Valley - Pixley National Wildlife Refuge, and Ten Section Oil Field - Elk Hills, are located approximately 3.6 miles southwest from the Project site (**Figure 4.4-1:** Wildlife *Movement Corridors*; CDFW n.d.).

The Project site is situated within the Pacific Flyway, which is a significant avian migration route that covers a wide swath of land along the western Americas from Patagonia to Alaska. Although the Project site is located within the Pacific Flyway, the Project site constitutes an insignificant proportion relative to the total established range of the Pacific Flyway.

Figure 4.4-1: Wildlife Movement Corridors



Local Setting

The Project site is located on 128 parcels and approximately 11,983 acres, in the San Joaquin Valley portion of Kern County. The Project site is in unincorporated Kern County and north/northeast of the community of Buttonwillow, approximately 2 miles west of the City of Shafter and approximately 7 miles southwest of the City of Wasco. The Project site straddles I-5 east of Buttonwillow Raceway Park, just north of State Route (SR) 58, and south of SR-46. Several single-family homes and agriculture-related structures are near the proposed Project boundary. Properties within the Project site include a dairy, a few single-family homes, and some varied structures for agricultural use, all of which would be removed during proposed Project construction.

According to the U.S. Geological Survey (USGS) the Project site is within the Wasco SW, Semitropic, Rio Bravo, Buttonwillow, and Lokern USGS 1:24,000 topographic map (7.5-minute quadrangles).

Land use in the Project site is primarily agricultural, including large areas cultivated for almonds, pistachios, alfalfa, and cotton. The natural communities that were historically present have been substantially altered because of agricultural activities. Non-disturbed alkali sink, saltbush scrub, and non-native grassland occur in patches in the north, south, and east. Portions of the Buttonwillow Ecological Reserve, an approximately 1,400 acre reserve that is owned and managed by CDFW, are located adjacent to Sites 5 and 6. Agricultural croplands surround the Project site.

Biological Study Area

Biological resources surveys were conducted for the proposed Project in 2022, 2023, and 2024. A Biological Study Area (BSA) is the area that was surveyed for biological resources within the Project site limits of disturbance (for Sites 1–6 and 8) and gen-tie/collector line. A 200-foot buffer was defined around each gen-tie/collector line. Buffers are used to provide context for the resources identified within the area, address potential indirect effects, and allow refinements to the proposed Project while maintaining an adequate representation of the biological resources present.

The BSA was used for reconnaissance and focused biological surveys including special-status plant surveys, burrow mapping, a San Joaquin antelope squirrel focused survey, Swainson's hawk habitat assessment, vernal pool fairy shrimp habitat assessment, small mammal trapping, and camera studies for Buena Vista Lake ornate shrew that were conducted in 2024. Burrow mapping included a habitat assessment for blunt-nosed leopard lizard, burrowing owl, San Joaquin kit fox, and American badger. The specific research methodology and survey protocol data is provided in Appendix D.2.

An aquatic resources jurisdictional delineation was conducted in 2023 and 2024. Vegetation mapping was conducted concurrently with the aquatic resources jurisdictional delineation. The specific research methodology and survey protocol data are provided in Appendix D.4.

Reconnaissance and focused biological surveys were conducted in 2024 for the Midway Substation site, which included vegetation mapping, aquatic resources jurisdictional delineation, and focused survey for special status plants. The specific research methodology and survey protocol data is provided in Appendix D.5.

Soils

According to the U.S. Department of Agriculture Natural Resources Conservation Service (Appendix D.2), the following soil series occur within the boundaries of the BSA and Midway Substation site: (1) Calflax clay loam, saline-sodic, 0 percent to 2 percent slopes; (2) Granoso loamy sand, 0 percent to 2 percent slopes; (3) Kimberlina fine sandy loam, 0 percent to 2 percent slopes; (4) Milham sandy loam, 0 percent to 2 percent slopes; (5) Panoche clay loam, 0 percent to 2 percent slopes; (6) Buttonwillow clay, drained; (7) Buttonwillow, partially drained; (8) Garces silt loam; (9) Garces silt loam, hard substratum; (10) Garces silt loam, moderately wet; (11) Jerryslu loam; (12) Lerdo clay loam, saline-alkaline, partially drained; (13) Lerdo complex, drained; (14) Lokern clay, drained; and (15) Lokern clay, saline-alkali, drained. There were also areas mapped as water.

Vegetation Communities and Land Covers

A total of 20 vegetation communities or land cover types exist within the BSA **(Table 4.4-1:** *Existing Vegetation Communities, Vegetation Alliances and Associations, and Land Cover Types on the BSA (Acres)*) and four were mapped on the Midway Substation site (**Table 4.4-2:** *Existing Vegetation Communities, Vegetation Alliances and Associations, and Land Cover Types on the Midway Substation Site*). The spatial distribution of the vegetation communities and land covers is presented in Appendix D.2 and Appendix D.5

State rankings of 1, 2, or 3 are considered sensitive, and impacts to these communities typically are considered significant requiring mitigation. There are four vegetation communities considered sensitive biological resources by CDFW under CEQA (Dudek 2025a). The vegetation communities marked with an asterisk (*) in **Table 4.4-1:** *Existing Vegetation Communities, Vegetation Alliances and Associations, and Land Cover Types on the BSA and Midway Substation Site (Acres)*, are considered sensitive vegetation communities.

Approximately 12,472.3 acres, or 96 percent of the BSA (comprised of the development footprint and gen-tie line route), are disturbed/developed, including the following land cover types: orchards, general agriculture, disturbed habitat, urban/developed lands, open water, and ornamental plantings. Approximately 169 acres, or 66 precent of the Midway Substation site are disturbed/developed, including the following land cover types: orchards; disturbed habitat; and urban/developed lands.

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Table 4.4-1: Existing Vegetation Communities, Vegetation Alliances and Associations, and Land Cover Types on the BSA (Acres)

General Category	Common Name	Scientific Name	Classification	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 8	Gen-Tie	Percent of BSA	BSA Total[a]
Bog and marsh	Bush seepweed scrub	*Suaeda moquinii* association (Suamoq)*	Association	N/A	46.5	89.9	N/A	N/A	N/A	33.8	6.7	1.4	176.9
		Isocoma acradenia alkaline wet association (IsoacrAlkWet)*	Association	N/A	N/A	1.9	N/A	N/A	N/A	13.6	N/A	0.1	15.6
	Cattail marshes	*Typha* (*angustifolia*, *domingensis*, *latifolia*) alliance (*Typangdomlat*)	Alliance	N/A	0.3	N/A	N/A	N/A	N/A	N/A	N/A	<0.1	0.3
	Salt grass flats	*Distichlis spicata* association (*Disspi*)	Association	N/A	N/A	N/A	N/A	N/A	N/A	18.3	N/A	0.1	18.3
	Spinescale scrub	*Atriplex spinifera* association (*Atrspi*)*	Association	N/A	N/A	N/A	N/A	N/A	N/A	0.2	N/A	<0.1 t	0.2
	Tar plant fields	*Centromadia* (*pungens*) alliance*	Alliance	N/A	N/A	11.9	N/A	N/A	N/A	N/A	0.4	0.1	12.4
			Bog and Marsh Total[a]	**N/A**	**46.8**	**103.8**	**N/A**	**N/A**	**N/A**	**65.9**	**7.1**	**1.7**	**223.7**
Disturbed and developed	Orchards	Orchards (ORC)	None/general habitat/group	854.8	0.5	N/A	221.9	535.9	832.2	716.6	244.2	26.2	3,406.1
	General agriculture	General agriculture (AGR)	None/general habitat/group	1,132.3	474.9	449.9	158.1	2,003.9	1,324.5	1,978.5	201.8	59.4	7,723.4
	Disturbed habitat	Disturbed habitat (DH)	None/general habitat/group	260.1	19.6	17.5	20.0	140.3	92.3	188.3	290.8	7.9	1,028.9
	Urban/developed	Urban/developed (DEV)	None/general habitat/group	5.9	1.9	N/A	N/A	12.4	153.7	4.6	119.1	2.3	297.6
	Open water	Open water (OW)	None/general habitat/group	1.0	0.32	N/A	0.82	1.2	2.0	1.4	0.7	0.1	7.6
	Ornamental plantings	Ornamental plantings (ORN)	None/general habitat/group	N/A	N/A	N/A	N/A	N/A	2.3	6.2	0.2	0.1	8.7
			Disturbed and Developed Total[a]	**2,254.1**	**497.2**	**467.4**	**400.8**	**2,693.7**	**2,407**	**2,895.6**	**856.8**	**95.9**	**12,472.3**
Grass and herb dominated	Russian thistle–dyers woad–fivehook bassia fields	*Bassia* (*hyssopifolia*, *scoparia*) Association (*Bashyssco*)	Pending association	N/A	N/A	N/A	N/A	N/A	1.1	0.9	N/A	<0.1	2.0
	N/A	Non-native grassland general habitat (NNG)	None/general habitat/group	N/A	N/A	89.3	N/A	N/A	N/A	0.1	20.0	0.8	109.4
			Grass and Herb Dominated Total[a]	**N/A**	**N/A**	**89.3**	**N/A**	**N/A**	**1.1**	**0.1**	**20.0**	**0.8**	**111.4**
Riparian	Tamarisk thickets	*Tamarix* spp. association (Tam)	Semi-natural association	N/A	0.75	N/A	N/A	N/A	3.0	6.7	N/A	0.1	10.5
			Riparian Total[a]	N/A	0.75	N/A	N/A	N/A	3.0	6.7	N/A	0.1	10.5
Scrub	Fourwing saltbush scrub	*Atriplex canescens* association (*Atrcan*)	Association	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.5	<0.1	1.5
	Allscale scrub	*Atriplex polycarpa* association (*Atrpol*)	Association	37.8	N/A	N/A	N/A	N/A	N/A	51.7	64.3	1.2	153.8
		Atriplex polycarpa sparse playa association (*Atrpolspapla*)	Association	N/A	N/A	N/A	N/A	N/A	N/A	21.6	<0.01	0.2	21.6
			Scrub Total[a]	37.8	N/A	N/A	N/A	N/A	N/A	73.3	65.8	1.4	176.9
Unvegetated	Unvegetated channel	Unvegetated channel (UVC)	None/general habitat/group	N/A	N/A	N/A	N/A	N/A	N/A	2.1	N/A	<0.1	2.1
			Unvegetated Total[a]	N/A	N/A	N/A	N/A	N/A	N/A	2.1	N/A	<0.1	2.1
Woodland	N/A	Eucalyptus (*globulus*, *camaldulensis*) association (*Eucglocam*)	Semi-natural association	N/A	N/A	N/A	N/A	N/A	2.1	2.1	0.8	<0.1	5.0
			Woodland Total[a]	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**2.1**	**2.1**	**0.8**	**<0.1**	**5.0**
			Total[a]	2,292.9	544.6	659.9	400.8	2,693.8	2,413.2	3,044.8	950.7	100	12,999.6

Notes:

Vegetation communities with a "*" after the name are considered sensitive vegetation communities.

[a] Totals may not sum precisely due to rounding.

Key: gen-tie = generation transmission line route; N/A = not applicable

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Table 4.4-4.4-2: Existing Vegetation Communities, Vegetation Alliances and Associations, and Land Cover Types on the Midway Substation Site

General Category	Common Name	Scientific Name	Classification	Acreage	Percentage of Midway Substation Site
Disturbed and developed	Orchards	Orchards (ORC)	None/general habitat/group	0.6	0%
	Disturbed habitat	Disturbed habitat (DH)	None/general habitat/group	1.2	0%
	Urban/developed	Urban/developed (DEV)	None/general habitat/group	167.2	66%
Disturbed and Developed Total				**169.0**	**66%**
Grass and herb dominated	N/A	Non-native grassland general habitat (NNG)	None/general habitat/group	86.0	34%
Grass and Herb Dominated Total				**86.0**	**34%**
Total				**255.0**	**100%**

Key: NA = not applicable

Bog and Marsh

Approximately 1.7 percent of the BSA is composed of the bog and marsh vegetation communities described below. The three sensitive natural communities that occur within the BSA (Bush Seepweed Scrub, Spinescale Scrub, and Tar Plant Fields) are described below in sensitive natural communities.

Cattail Marshes

Narrowleaf cattail (*Typha angustifolia*), southern cattail (*Typha domingensis*), and broadleaf cattail (*Typha latifolia*) are dominant or codominant in the herbaceous layer of the cattail marshes alliance. Cover in this alliance is intermittent to continuous. This alliance is semi-permanently flooded freshwater or brackish marsh, and the soils are clayey or silty (Dudek 2025a). The cattails marsh alliance was observed only within Site 2, in the western portion of the BSA (Appendix D.2). This alliance is not considered sensitive under CEQA.

Salt Grass Flats

The salt grass flats alliance is a vegetation community where salt grass flats, spiny rush (*Juncus acutus*), and/or Cooper's rush (*Juncus cooperi*) are dominant or codominant in the herbaceous layer. This alliance usually displays an open to continuous cover with herbs less than 1.5 meters (5 feet) in height. The salt grass flats alliance typically occurs in coastal salt marshes and inland habitats (for example, playas, swales, and terraces along wash that may be intermittently flooded). This alliance occurs on soils that are often deep, alkaline or saline, and poorly drained. When the soil is dry, the surface usually has salt accumulations (Dudek 2025a).

The salt grass flats association is within the salt grass flats alliance and was only observed within Site 8, in the northern portion of the BSA (Appendix D.2). The salt grass flats association is not considered sensitive under CEQA.

Disturbed and Developed

Approximately 96 percent of the BSA is disturbed/developed, including the following land cover types: orchards, general agriculture, disturbed habitat, urban/developed lands, open water, and ornamental plantings. Approximately 169 acres, or 66 percent of the Midway Substation site are disturbed/developed, including the following land cover types: orchards; disturbed habitat; and urban/developed lands, described below.

Disturbed Habitat

Disturbed habitat refers to areas where soils have been recently or repeatedly disturbed by grading, compaction, or clearing of vegetation. Structures are typically not present within disturbed habitats, and these areas provide relatively low value for most plant and wildlife species. When vegetated, disturbed habitat supports predominantly non-native plant species, such as ornamentals or ruderal exotic species that take advantage of disturbance.

Disturbed habitat is not a listed vegetation community under the California Natural Community List, but it has been used in this report because it best describes what was observed in the field. As such, this land cover is not globally or state ranked and is not considered a sensitive natural community under CEQA.

Within the BSA, disturbed habitat is primarily disked, tilled, or cleared fields that are not irrigated. It also includes human-made basins, ditches, and settling ponds; soil stockpiles; unpaved access roads; and staging areas. Disturbed habitat was observed on all sites and the gen-tie line route (Appendix D.2). Within the Midway Substation site, disturbed habitat consists of 1.2 acres (0%) (Appendix D.5).

Urban/Developed

Urban/developed land refers to areas that have been constructed on or otherwise physically altered to the point where vegetation is no longer present. Developed areas are characterized by permanent or semi-permanent structures, hardscapes, and landscaped areas that require irrigation.

Urban/developed land is not a listed vegetation community under the California Natural Community List, but it has been used in this report because it best describes what was observed in the field. As such, this community is not globally or state ranked and is not considered a sensitive natural community under CEQA.

Within the BSA, urban/developed areas included roads and structures associated with residential, agricultural, and industrial development, such as substations, solar arrays, and intensive agricultural operations (for example, dairies). Urban areas were observed on the gen-tie line route and all sites except Sites 3 and 4 (Appendix D.2). Within the Midway Substation site, approximately 167.2 acres (66%) are urban/developed areas and include the existing substation, roads, and parking (Appendix D.5).

Orchards

Orchards refer to areas where trees, shrubs, or crop plants (for example, grapevines) which have been intentionally planted to produce food or for other commercial purposes. Orchards and vineyards are typically artificially irrigated, and plants may be supported with structures (for example, trellises). Orchards and vineyards typically support a limited understory of grasses or herbs (Oberbauer et al. 2008). Orchards were observed on the gen-tie line route and all sites except Site 3 (Appendix D.2). Within the Midway Substation site there are 0.6 acres (0%) of orchards (Appendix D.5).

General Agriculture

Within the BSA, agricultural lands consist of alfalfa, almonds, pistachios, and cotton and occupy more than half of the BSA. On-site farming practices include soil disking, plowing, and herbicide application, as well as regular anthropogenic maintenance and disturbance associated with ongoing management actions. General agriculture is located on all sites and the gen-tie line route (Appendix D.2).

Open Water

The open water within the BSA includes 7.6 acres of standing or flowing freshwater associated with basins and canals located within Sites 1, 2, 4 through 6, 8, and the gen-tie line route (Appendix D.2). See Appendix D.4 for more detailed information.

Ornamental Plantings

Ornamental plantings within the BSA include Australian pine (*Casuarina equisetifolia*) lining the outside of the property. Additionally, lawn and other ornamental species associated with residences exist within the BSA. Ornamental plantings are located on Sites 6 and 8 and the gen-tie line route (Appendix D.2).

Grass and Herb Dominated

Approximately 0.8 percent of the BSA and 34 percent of the Midway Substation site is composed of grass and herb dominated vegetation communities, described below.

Russian Thistle–Dyers Woad–Fivehook Bassia Fields

The Bassia (*hyssopifolia*, *scoparia*) association exists within the BSA. This association is also dominated by non-native species and is not considered sensitive under CEQA. The Bassia association was observed on Sites 6 and 8 (Appendix D.2).

Non-Native Grassland

Non-native grasslands are grasslands that are dominated by non-native species. These grasslands typically occur in areas with a history of disturbance. Some associated species include common oat (*Avena sativa*), bromes (*Bromus* spp.), and barleys (*Hordeum* spp.) (Dudek 2025a). Within the BSA, this general habitat occurs in upland habitat in the non-agricultural extent of the BSA.

Common non-native grasses that dominate these areas include red brome (*Bromus rubens*) and ripgut brome (*Bromus diandrus*), foxtail barley (*Hordeum murinum*), perennial rye grass (*Festuca perennis*), and Bermudagrass (*Cynodon dactylon*). Other herbaceous species commonly present within non-native grasslands include a variety of non-native species, such as redstem stork's bill (*Erodium cicutarium*), shortpod mustard (*Hirschfeldia incana*), Russian thistle, and yellow star-thistle (*Centaurea solstitialis*), as well as occasional native herbaceous species, such as sacred thorn-apple (*Datura wrightii*), common sunflower *(Helianthus annuus*), and seaside heliotrope (*Heliotropium curassavicum* var. *oculatum*). Native shrubs, such as allscale and alkali goldenbush (*Isocoma acradenia*), are present at low cover in some areas of non-native grassland.

Non-native grasslands were not mapped to the alliance or association level because all alliances and associations are not considered sensitive under CEQA as they are dominated by non-native species. Non-native grasslands were observed on Sites 3 and 8 and the gen-tie line route (Appendix D.2). Within the Midway Substation site, there are 86.0 acres (34%) of non-native grasslands on-site (Appendix D.5).

Riparian

Approximately 0.1 percent of the BSA is composed of riparian vegetation communities, described below.

Tamarisk Thickets

Tamarisk thickets alliance includes tamarisk (*Tamarix ramosissima*) as the dominant species in the shrub canopy and occurs along lake margins, ditches, wash, rivers, and other watercourses (Dudek 2025a). Shrub canopy is open to continuous with shrubs less than 26 feet (8 meters) in height; herbaceous layer is sparse. The tamarisk thickets alliance is considered a semi-natural alliance and, therefore, is not considered sensitive under CEQA. Within the BSA there is one association in the tamarisk thickets association which is within the tamarisk thickets alliance. The tamarisk association is not considered sensitive under CEQA. The tamarisk association was observed on Sites 2, 6, and 8 (Appendix D.2).

Scrub

Approximately 1.4 percent of the BSA is composed of scrub vegetation communities, described below.

Fourwing Saltbush Scrub

Within the fourwing saltbush scrub alliance, fourwing saltbush (*Atriplex canescens*) typically dominates or shares dominance in the shrub canopy alongside species such as white bursage (*Ambrosia dumosa*), cheesebush (*Ambrosia salsola*), shadscale (*Atriplex confertifolia*), allscale (*Atriplex polycarpa*), yellow rabbitbrush (*Chrysothamnus viscidiflorus*), bladderpod (*Peritoma arborea*), Mormon tea (*Ephedra viridis*), spiny hop sage (*Grayia spinosa*), creosote bush (*Larrea tridentata*), and bush seepweed (*Suaeda nigra*). Occasionally, emergent trees (for example, honey mesquite [*Prosopis glandulosa*]) may be found at low cover. Shrub density is sparse and typically less than 3 meters in height, and the herbaceous layer exhibits variability with seasonal herbs and non-native grasses. This alliance thrives in diverse habitats including playas, old beaches, lake deposits, dissected alluvial fans, rolling hills, and channel beds. Soils are characterized as carbonate-rich, alkaline, and predominantly sandy or sandy clay loams (Dudek 2025a).

The fourwing saltbush scrub alliance is ranked by CDFW as a G5S4 alliance. This ranking indicates that globally, the alliance is secure, and within California, the alliance is apparently secure (Dudek 2025a).

The fourwing saltbush scrub association is present within the BSA. The fourwing saltbush association is limited to three polygons within the BSA, all three of which are on the gen-tie line route in the northern portion of the BSA (Appendix D.2). This association is not sensitive under CEQA.

Allscale Scrub

Within the allscale scrub alliance, allscale is the dominant shrub species, with additional cover from other shrubs including cheesebush, fourwing saltbush, alkali goldenbush, and bladderpod (*Physaria* spp.). Some emergent trees may be present at low cover, including honey mesquite. Shrub cover is open to continuous with seasonal herbaceous cover. This alliance occurs in a variety of contexts, including: washes, playa lakebeds, and shores; alluvial fans; rolling hills; and edges of large, low-gradient washes. Soils are typically rich, alkaline, sandy, or sandy clay loam (Dudek 2025a).

The allscale scrub alliance is ranked as a G4S4 alliance. This ranking indicates that both globally and within California, the alliance is apparently secure (Dudek 2025a).

The allscale association and allscale sparse playa association are present in the BSA. The allscale association occurs on Sites 1 and 8 and the gen-tie line route (Appendix D.2). The allscale sparse playa association occurs on Site 8 and the gen-tie line route. Neither of these associations is sensitive under CEQA.

Unvegetated

Less than 0.1 percent of the BSA is composed of unvegetated landcover types, described below.

Unvegetated Channel

Non-vegetated floodplains or channels are sandy, gravelly, or rocky areas along waterways or flood channels that are unvegetated on a relatively permanent basis due to variable water levels. Vegetation, if present, consists of non-native grasses at the outer edges with usually less than 10 percent absolute cover. Unvegetated channel is not a listed vegetation community under the California Natural Community List; however, it best describes what was observed in the field. Unvegetated channel includes natural drainages or modified channels that potentially connect to state waters.

Approximately 2.1 acres of unvegetated channels occur within Site 8 (Appendix D.2). See Appendix D.4 for more detailed information.

Woodland

Less than 0.1 percent of the BSA is composed of woodland vegetation communities, described below.

Eucalyptus–Tree of Heaven–Black Locust Groves

Within the eucalyptus–tree of heaven–black locust groves, eucalyptus (*Eucalyptus* spp.), tree of heaven (*Ailanthus altissima*), or black locust (*Robinia pseudoacacia*) is dominant in the tree canopy (Dudek 2025a). Tree canopy is open to continuous and less than 197 feet (60 meters) in height; shrub and herbaceous layer is sparse to intermittent. This semi-natural alliance is planted as trees, groves, and windbreaks and naturalized on uplands or bottomlands and adjacent to stream courses, lakes, or levees.

The eucalyptus association is present within the BSA. It is located on Sites 6 and 8 and the gen-tie line route (Appendix D.2). The eucalyptus association is considered a semi-natural stand and is therefore not considered sensitive under CEQA.

Sensitive Natural Communities

Three sensitive natural communities occur within the BSA: Bush Seepweed Scrub, Spinescale Scrub, and Tar Plant Fields.

Bush Seepweed Scrub

Within the bush seepweed scrub alliance, bush seepweed (*Suaeda moquinii*) or alkali goldenbush is dominant or codominant in the shrub canopy. The alliance usually displays an open to continuous canopy less than 5 feet (1.5 meters) in height; the herbaceous layer is sparse to intermittent. This alliance typically occurs in flat to gently sloping valley bottoms, playas, and toe slopes, adjacent to alluvial fans and bajadas. The soils are typically deep and saline or alkaline (Dudek 2025a).

The bush seepweed association is within the bush seepweed alliance and was observed on Sites 2, 3, 8, and the gen-tie line route (Appendix D.2).

Also, within the bush seepweed alliance is the alkali goldenbush alkaline wet association, which also occurs on the BSA. Both of these associations are considered sensitive under CEQA.

Spinescale Scrub

The spinescale scrub alliance is a vegetation community where spinescale (*Atriplex spinifera*) is dominant or codominant in the shrub canopy with cheesebush, allscale, California joint fir (*Ephedra californica*), alkali heath (*Frankenia salina*), California match weed (*Gutierrezia californica*), alkali goldenbush, and bud sagebrush (*Artemisia spinescens*). In this alliance, shrubs are less than 2 meters (6.5 feet), and the canopy is open; the herbaceous layer is variable with seasonal annuals reaching high cover. The spinescale scrub alliance occurs in alluvial fans and old lake beds perched above current drainages. The soils in this alliance are moderately sandy clay loams to fine, silty clays that may be carbonate rich (Dudek 2025a).

The spinescale scrub association is within the spinescale scrub alliance and occurs on Site 8, in the northern portion of the BSA (Appendix D.2). The spinescale scrub association is considered sensitive under CEQA.

Tar Plant Fields

The tar plant fields alliance is a vegetation community where tar plant (*Centromadia pungens* and/or another *Centromadia* species) is conspicuous to dominant in the herbaceous layer with *Atriplex* species, *Bromus* species., annual hairgrass (*Deschampsia danthonioides*), Hoover's downingia (*Downingia bella*), redstem stork's bill, alkali heath, shortpod mustard, foxtail barley, California goldfields (*Lasthenia californica*), Fremont's goldfields (*Lasthenia fremontii*), cowbag clover (*Trifolium depauperatum*), and whitetip clover (*Trifolium variegatum*). Emergent shrubs may be present at low cover, including bush seepweed. In this alliance, herbs are less than 1 meter

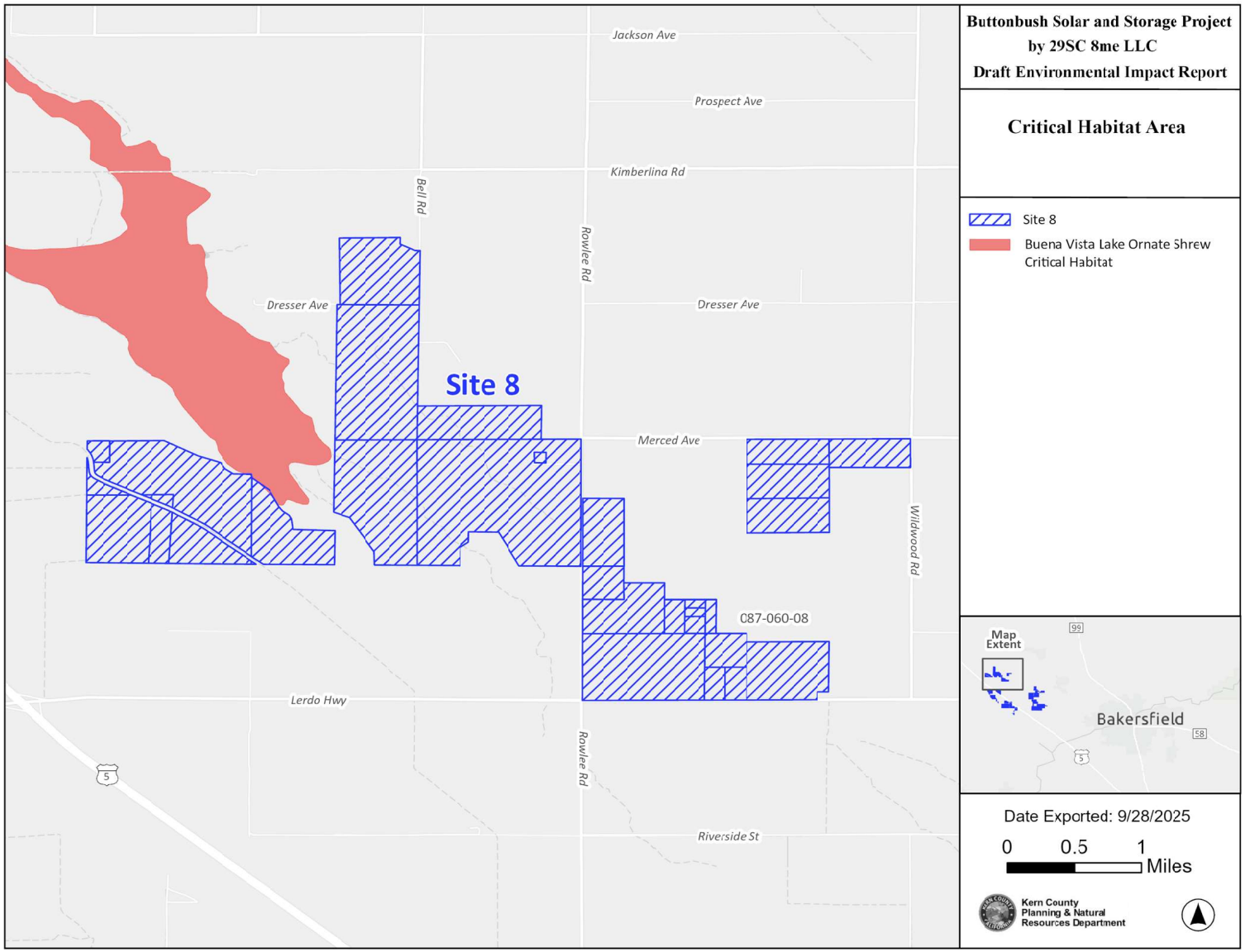
(3 feet) and cover is intermittent. The tar plant fields alliance occurs in vernally wet habitats, including edges of alkaline pools, bottoms of shallow pools, and alkaline flats with periodic or intermittent inundation. Soils are fine-textured alluvium, sometimes underlain by claypan or another impervious layer, and poorly drained (Dudek 2025a).

The majority of the tar plant fields alliance was observed on Site 3, and a small amount of this alliance was also observed on the gen-tie line route, in the central-western portion of the site (Appendix D.2). The tar plant fields alliance is considered sensitive under CEQA.

Critical Habitat

The Project site overlaps with federally designated critical habitat for Buena Vista Lake ornate shrew. As shown in **Figure 4.4-2:** *Critical Habitat Area in the BSA*, critical habitat for Buena Vista Lake ornate shrew occurs within Tax Assessor Parcels 087-050-29 and 087-040-01 in Site 8. The Midway Substation site does not overlap with federally designated critical habitat.

Figure 4.4-2: Critical Habitat Area in the BSA



Wetlands and Waters

The USGS National Hydrography Dataset maps anthropogenic (that is, canals and ditches) and nonanthropogenic (that is, streams and rivers) features within the review area. The USFWS National Wetlands Inventory (USFWS 2023b) indicates that freshwater ponds and freshwater emergent wetlands may occur within the review area (Appendix D.4).

The jurisdictional aquatic resources delineation identified numerous isolated channels, canals/ditches, ponds, and wetlands within the BSA. The results of the jurisdictional delineation concluded that there are 104.2 acres of CDFW jurisdictional features, including 6.1 acres of pond or lake, 91.3 acres of riparian, and 6.8 acres of streambed. These same features are also jurisdictional under the RWQCB. There are 104.2 acres of RWQCB-jurisdictional features, including 91.3 acres of wetlands and 13.0 acres of non-wetlands (Appendix D.4). **Table 4.4-3:** *Potential Aquatic Resource Summary—CDFW (Acres)*, and **Table 4.4-4:** P*otential Aquatic Resources Summary—RWQCB (Acres)*, summarize the potentially jurisdictional features within the BSA. Quantities presented in **Table 4.4-3:** *Potential Aquatic Resource Summary—CDFW (Acres)*, and **Table 4.4-4:** P*otential Aquatic Resources Summary—RWQCB (Acres)*, should not be considered cumulatively, as they represent the same aquatic features.

The BSA has been extensively disturbed over the years by anthropogenic influences, chiefly past and present agricultural activities. Many of the features assessed within the BSA are irrigation ditches used for conveying water to orchards and agricultural fields, as well as human-made basins draining the orchards and fields. There are some meandering, earthen-bottom channels within the site that are isolated from traditional navigable waters, although there is evidence to suggest that these features have also been subject to some dredging and other manipulation. The BSA contains several isolated ponded areas, sparsely vegetated alkaline areas, and some wetlands. These features are not likely subject to U.S. Army Corps of Engineers (USACE) jurisdiction because these features are isolated and do not meet the relatively permanent or significant nexus standard as a water of the United States.

Table 4.4-3. Potential Aquatic Resources Summary—CDFW (Acres)

Feature Type	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 8	Gen-Tie	BSA Total
Lake or pond	N/A	N/A	1.0	N/A	N/A	N/A	5.1	N/A	6.1
Riparian	N/A	N/A	61.0	N/A	N/A	N/A	30.3	N/A	91.3
Streambed	0.9	0.3	0.3	N/A	N/A	N/A	5.4	N/A	6.8
Site Subtotals	0.9	0.3	62.3	N/A	N/A	N/A	40.8	N/A	N/A
								Total	**104.2**

Note:

Totals may not sum precisely due to rounding.

Key: CDFW = California Department of Fish and Wildlife; gen-tie = generation transmission line route; N/A = not applicable

Table 4.4-4. Potential Aquatic Resources Summary—RWQCB (Acres)

Feature Type	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 8	Gen-Tie	BSA Total
Wetlands	N/A	N/A	61.0	N/A	N/A	N/A	30.3	N/A	91.3
Non-Wetlands	0.9	0.3	1.3	N/A	N/A	N/A	10.5	N/A	13.0
Site Subtotals	0.9	0.3	62.3	N/A	N/A	N/A	40.8	N/A	N/A
							Total	**N/A**	**104.2**

Note:

Totals may not sum precisely due to rounding.

Key: gen-tie = generation transmission line route; N/A = not applicable; RWQCB = Regional Water Quality Control Board

The Biological Resources Habitat Assessment (Appendix D.5) concluded that no state or federally protected wetlands were present at the Midway Substation site.

Wildlife Refuges and Protected Habitat Areas

Buttonwillow Ecological Reserve

The Buttonwillow Ecological Reserve is a protected area of approximately 1,400 acres located in Kern County, California. It was designated as an ecological reserve by the Fish and Game Commission in 2000 (CDFW 2025). The Buttonwillow Ecological Reserve is situated east of the community of Buttonwillow, at the intersection of Seventh Standard Road and Brandt Road. The primary purpose of the reserve is to protect rare, threatened, and endangered native plants, wildlife, and their habitats. The land was acquired to prevent its conversion to agricultural use, as many of the adjacent lands are intensively farmed. The reserve provides habitat for a variety of species, including: prairie falcon, meadowlark, mourning dove, turkey vulture, and red-tailed hawk, black-tailed hares, and cottontail. Blunt-nosed leopard lizard training workshops conducted by the Wildlife Society in conjunction with CDFW occur within the Buttonwillow Ecological Reserve.

Sites 5 and 6 of the BSA abut the Buttonwillow Ecological Reserve (Figure 3-7).

Lokern Ecological Reserve

The Lokern Ecological Reserve consists of over three dozen discontinuous areas south and west of I-5, two of which abut I-5, and one of these is adjacent to Site 3 and Site 4 (Figure 3-7). The Lokern Ecological Reserve is approximately 3,100 acres of marsh, valley sink scrub, and valley saltbush scrub habitat located in Kern County (CDFW 2025). The other portions of this reserve are located more than three (3) miles southwest of the proposed Project site (at the closest point). Vegetation in the marsh habitat includes tule, cattail and other common marsh species. Animal species include frogs, snakes, turtles, shorebirds, ducks, geese, herons, blackbirds, shrews, raccoons, voles, and tule elk. Typical native plant species in valley sink scrub are iodine bush and seepweed, with the understory dominated by non-native species. It is part of the Lokern Natural Area that includes over 30,000 acres of high-quality habitat for various wildlife and plant species of the San Joaquin Valley.

Recovery Plan for Upland Species of the San Joaquin Valley

The Project site is located within the planning area of the Recovery Plan for Upland Species of the San Joaquin Valley, California (USFWS 1998). The Valley floor planning area stretches from the Sacramento-San Joaquin River Delta down to the Tehachapi Mountains and accounts for 34 San Joaquin Valley species listed as federally protected or as candidates or species of concern. The planning area is 430 miles long and covers about 15 million acres. Its floor below the approximate 500-foot contour measures about 8.5 million acres and extends about 258 miles north–south. West of the Valley proper, hills below about 3,000 feet and high plains support natural communities in common with much of the Valley floor.

Plant and Wildlife Species Summary

This section summarizes the special status plant and wildlife species that may potentially occur in the Project site and Midway Substation site. Biological resources were observed within the Midway Substation site, and the potential for the Project site and Midway Substation site to support other sensitive biological resources was evaluated. Assessments for the potential occurrence of special status species are based upon known ranges, species habitat preferences, species occurrence records from CNDDB, CNPS, IPaC, eBird, and species occurrence records from other studies in the survey area, and the results of the surveys of the Project site and Midway Substation site.

There were four special status plant species and 17 animal species determined to have potential to occur on the Project site and potentially be affected by the proposed Project (**Table 4.4-5:** *Special-Status Plants with Potential to Occur on the BSA* and **Table 4.4-7:** *Special-Status Wildlife Species with Potential to Occur on the BSA*). A complete list of wildlife observed is included in Appendix D.2. There were one special status plant species and six animal species determined to have potential to occur on the Midway Substation site and potentially be affected by the proposed Project (Appendix D.5).

The potential-to-occur ratings indicated in **Table 4.4-5:** *Special-Status Plants with Potential to Occur on the BSA*, and **Table 4.4-7:** *Special-Status Wildlife Species with Potential to Occur on the BSA*, are defined as follows:

- Not Expected: Habitat within the Project site is unsuitable or Project site is outside of species historical range (i.e., over 20 years old) or surveys have been conducted during the appropriate blooming period.
- Low: Habitat within the Project site is marginal and/or documented occurrences of species are historical (i.e., over 20 years old), or recent records are more than 5 miles from the Project site.
- Moderate: Habitat within the Project site is suitable and species has been documented within 5 miles of the Project site in recent records (i.e., within 20 years).
- High: Habitat within the Project site is suitable and species has been documented either within the Project site or immediately adjacent to proposed Project boundary in recent records (i.e., within 20 years).

Special-Status Plant Species

Special-status plant species are defined herein as the following:

- Species that are designated as rare, threatened, or endangered by CDFW or USFWS and are protected under either the California Endangered Species Act (CESA) (California Fish and Game Code Section 2050 et seq.) or Endangered Species Act (ESA) (16 USC 1531 et seq.)
- Species that are candidate species being considered or proposed for listing under ESA or CESA
- Species with a CRPR of 1 and 2 in the Special Vascular Plants, Bryophytes, and Lichens List (CDFW 2024b)

Based on the results of literature review and database searches, one special-status species has a high potential to occur (Appendix D.2) on the Project site. Based on focused surveys conducted in 2024, three special-status plants were observed (Appendix D.2) on the Project site. One special-status plant species was observed on the Midway Substation site during focused surveys in 2024 (Appendix D.5). Plant species with potential to occur on the Project site and potentially be affected by the proposed Project are identified in **Table 4.4-5:** *Special-Status Plants with Potential to Occur on the BSA*. Plant species with a low potential to occur or plant species that are not expected to occur are not discussed further because no significant direct, indirect, or cumulative impacts to these species are expected to result from the proposed Project.

No critical habitat has been designated by the USFWS for any plant species in the Project site or Midway Substation site.

Table 4.4-5. Special-Status Plants with Potential to Occur on the BSA

Common Name (*Scientific Name*)	Status (Federal/ State/CRPR)	Primary Habitat Associations/Life Form/ Blooming Period/Elevation Range (ft amsl)	Potential to Occur
Heartscale (*Atriplex cordulata* var. *cordulata*)	None/None/1B.2	Chenopod scrub, meadows and seeps, valley and foothill grassland (sandy); alkaline (sometimes)/annual herb/Apr–Oct/0–1,835.	Present. There are approximately 22,642 individuals within the BSA. ▪ Site 1: 20,000 individuals observed. ▪ Site 2: 10 individuals observed. ▪ Site 4: 1 individual observed. ▪ Gen-tie line: 2,631 individuals observed. Present on Midway Substation site. This species was observed during focused surveys conducted in June 2024. One CNDDB record from 1999 has been recorded of this species approximately 3.5 miles southwest of the Midway Substation site (Appendix D.5).
lesser saltscale (*Atriplex minuscula*)	None/None/1B.1	Chenopod scrub, playas, valley and foothill grassland; alkaline, sandy/annual herb/May–Oct/50–655.	Present. There are approximately 3,817 individuals within the BSA, all in Site 8.
kern mallow (*Eremalche parryi* ssp. *kernensis*)	FE/None/1B.2	Chenopod scrub, pinyon and juniper woodland, valley and foothill grassland; clay (sometimes), dry, openings, sandy (sometimes)/annual herb/Jan(Feb)Mar–May/230–4,230.	High potential to occur. This species is known to occur approximately 1 mile from the BSA (Appendix D.2). Additionally, Sites 1, 3, and 8 and the gen-tie line route contain suitable chenopod scrub and/or grassland habitat to support this species.
alkali-sink goldfields (*Lasthenia chrysantha*)	None/None/1B.1	Vernal pools; alkaline/annual herb/Feb–Apr/0–655.	Present. There are approximately 50 individuals within the BSA, all in Site 3.

Status Legend:

Federal: FE – Federally listed as endangered; State: SE – State listed as endangered

California Rare Plant Rank: 1B: Plants rare, threatened, or endangered in California and elsewhere

Threat Rank: 0.1 – Seriously threatened in California (over 80 percent of occurrences threatened/high degree and immediacy of threat); 0.2 – Moderately threatened in California (20 percent–80 percent occurrences threatened/moderate degree and immediacy of threat)

Key: CRPR = California Rare Plant Rank; ft amsl = feet above mean sea level.

Heartscale

The heartscale (*Atriplex cordulata* var. *cordulata*) is an annual herb endemic to California and currently has the California Rare Plant Rank (CRPR) status of 1B.2. Heartscale is found in saline and alkaline soils, chenopod scrub, meadows and seeps, and sandy soils in valley-foothill grassland habitats between sea level and 1,835 feet, and occur in Alameda, Butte, Contra Costa, Colusa, Fresno, Glenn, Kern, Madera, Merced, San Joaquin, Solano, Stanislaus, Tulare, and Yolo counties. This species is threatened by competition from non-native plants and possibly threatened by trampling. Heartscale blooms from April to October. Approximately 22,642 total heartscale individuals were observed during 2024 botanical surveys (20,000 on Site 1; 10 on Site 2; 1 on Site 4; and 2,631 on the gen-tie line route) (Dudek 2025a).

This species was observed on the Midway Substation site during focused surveys conducted in June 2024.

Lesser Saltscale

Lesser saltscale (*Atriplex minuscula*) is an annual herb native to California and has a CRPR status of 1B.2. This species grows in alkaline and saline soils within chenopod scrub, playas, and valley and foothill grassland habitats, at elevations ranging from sea level to 2,950 feet. The primary threats to the lesser saltscale are urban development, agricultural conversion, and competition from invasive non-native plants. It blooms from May to October. Approximately 3,817 lesser saltscale individuals were observed during 2024 botanical surveys, all on Site 8.

Kern Mallow

Kern mallow is an annual herb that blooms between January until May and has a CRPR 1B.1 status. It is also federally listed as endangered under the ESA. It is found on dry, open sandy to clay soils, often at the edges of balds in chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland. It occurs at elevations ranging from approximately 230 to 4,230 feet. Based on the results of the literature review and database searches, Kern mallow has a high potential to occur on the BSA on Sites, 1, 2, 3, 8 and the gent-tie line route.

Alkali-Sink Goldfields

Alkali-sink goldfields is an annual herb endemic to California. It is a CRPR species with a status of 1B.1. This species is found in alkali playa and other saline or alkaline soils, as well as valley grassland habitats, at elevations ranging from sea level to 655 feet. The main threats to this species are agricultural conversion and urban development. Alkali-sink goldfields typically bloom from February to April. There are approximately 50 individuals within the BSA, all in Site 3.

Not all sites within the BSA contain suitable habitat resources to support the species described above. Therefore, **Table 4.4-6:** *Special-Status Plant Species Expected and Potential Impacts*, summarizes expected impacts (that is, where special-status plant species were observed during 2024 botanical surveys) and potential impacts to special-status plants broken down by site and the gen-tie line area.

Table 4.4-6. Special-Status Plant Species Expected and Potential Impacts

Special-Status Plant Species	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 8	Gen-Tie
heartscale	X	X	x	X	—	—	x	X
lesser saltscale	x	x	x	—	—	—	X	x
alkali-sink goldfields	—	X	x	—	—	—	x	—
Kern mallow	x	x	x	—	—	—	x	x

Key: Gen-tie = generation transmission line route; X = expected impact; x = potential impact

Special Status Wildlife Species

Special-status wildlife species include the following:

- Species that are designated as rare, threatened, or endangered by CDFW or USFWS and are protected under either CESA (California Fish and Game Code Section 2050 et seq.) or ESA (16 USC 1531 et seq.)
- Species that are candidate species being considered or proposed for listing under ESA or CESA
- California SSC, as designated by CDFW, and Birds of Conservation Concern (BCC), as designated by USFWS (CDFW 2024a)
- Wildlife identified as a fully protected (FP) species by CDFW, as described in California Fish and Game Code Sections 4700 and 3511 (CDFW 2024a)

Most avian species are afforded certain protections by the MBTA and CFGC (Sections 3500-3516); however, a majority of these, including some raptors, are common and are not considered special status on that basis alone.

Literature review identified 31 special status animal species with the potential to occur in the vicinity of the Project site (Appendix D.2). Of the 31 special status species, 17 (identified in **Table 4.4-7:** *Special-Status Wildlife Species with Potential to Occur on the BSA*) have potential to occur on the Project site and a potential to be affected by the proposed Project. The potential for these species to occur was determined based on the presence of suitable habitat within species' known range and/or historical documentation of the species in or near the Project site.

There were six special status animal species determined to have potential to occur on the Midway Substation site and potentially be affected by the proposed Project (Appendix D.5).

Table 4.4-7: Special-Status Wildlife Species with Potential to Occur on the BSA

Common Name (*Scientific Name*)	Status (Federal/State)	Habitat	Potential to Occur
Invertebrates			
Crotch's bumble bee (*Bombus crotchii*)	None/SC	Generally, open grassland and scrub communities supporting suitable floral resources. However, there have been no formal decisions regarding its preferred habitat. A generalist in vegetation community, elevation, and preferred nectar plants. Mostly nests in found burrows, but may also occasionally nest in tree holes, debris, and in bunch grass clusters. Can fly kilometers between forage and nest areas.	Observed on Site 1. Moderate potential to occur. The BSA supports floral resources for feeding and other habitat for nesting. In addition, there are CNDDB locations from Shafter (1953) (Dudek 2025a), approximately 3.0 miles east of the BSA along SR-43 (Dudek 2025a). Additional occurrences are scattered throughout the region further east near Cawelo and north of Oildale, south near Elk Hills (1950s to 1980s), and southwest along the Temblor Range (1980s to 2017; Dudek 2025a). This species was incidentally observed flying/foraging during 2024 botanical surveys and has a moderate potential to occur in portions of Sites 1, 2, 3, 5, 6, and 8 and in portions of the gen-tie line route (Appendix D.2).
Vernal pool fairy shrimp (*Branchinecta lynchi*)	FT/None	Vernal pools, seasonally ponded areas within vernal swales, ephemeral freshwater habitats, ephemeral pools, ditches, puddles, and other sources of temporary standing water.	Not Observed. Moderate to high potential to occur. Although there are no nearby CNDDB occurrences for this species (Dudek 2025a), the BSA contains areas of ephemeral ponded areas suitable for this species. Additionally, an unknown species of fairy shrimp (*Branchinecta* sp.) was observed within the BSA during 2023 biological surveys. This species has a moderate to high potential to occur in portions of Sites 1, 2, 3, 4, and 8 and portions of the gen-tie line route (Appendix D.2).

Table 4.4-7: Special-Status Wildlife Species with Potential to Occur on the BSA

Common Name (*Scientific Name*)	Status (Federal/State)	Habitat	Potential to Occur
Amphibians			
Western spadefoot (*Spea hammondii*)	FPT/SSC	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley-foothill woodlands, pastures, and other agriculture.	Observed in Site 8. Low to moderate potential to breed on-site. Observed during small mammal trapping on Site 8 (Figure 10, Spadefoot Spotlighting Survey Area). In addition, the CNDDB includes three recent (2019 to 2022) occurrences of the species between the project parcels and the gen-tie line route(s), including within and outside Buttonwillow Ecological Reserve. Multiple additional occurrences are located throughout the region (Dudek 2025a). This species likely has potential to breed during wet years in suitable ponded areas. Because of the specific microhabitat requirements of this species (ponded areas), suitable habitat was not modeled.
Reptiles			
Bakersfield legless lizard (*Anniella grinnelli*)	None/SSC, SCE	Southern San Joaquin Valley. Known from two disjunct areas: the east side of the Carrizo Plain and portions of the city limits of Bakersfield. Often found underneath leaf litter, rocks, and logs.	Not Observed. Moderate potential to occur. The BSA supports suitable habitats for this species in areas of saltbush scrub and alkali sink. A CNDDB search does not show a recorded location of this species within 5 miles of the proposed Project. The closest record is from 2020 and approximately 6 miles south of the proposed Project. This species has a moderate potential to occur in portions of Sites 1, 2, 3, 5, 6, and 8 and in portions of the gen-tie line route (Appendix D.2).
California glossy snake (*Arizona elegans occidentalis*)	None/SSC	Arid scrub, rocky washes, grasslands, chaparral, open areas with loose soil.	Not Observed. Moderate potential to occur. The BSA has arid scrub and grasslands with loose soils to support this species. This species has a moderate potential to occur in portions of Sites 1, 2, 3, 5, 6, and 8 and in portions of the gen-tie line route (Appendix D.2).
San Joaquin coachwhip (*Coluber flagellum ruddocki*)	None/SSC	Open, dry, treeless areas including grassland and saltbush scrub.	Not Observed. Moderate potential to occur. The BSA contains suitable grassland and saltbush scrub to support this species. This species has a moderate potential to occur in portions of Sites 1, 2, 3, 5, 6, and 8 and in portions of the gen-tie line route (Appendix D.2).

Table 4.4-7: Special-Status Wildlife Species with Potential to Occur on the BSA

Common Name (*Scientific Name*)	Status (Federal/State)	Habitat	Potential to Occur
Blunt-nosed leopard lizard (*Gambelia sila*)	FE/FP, SE	Sparsely vegetated alkali and desert scrubs, including semi-arid grasslands, alkali flats, and washes.	Not Observed. Moderate to high potential to occur. The BSA supports suitable habitats for this species. In addition, numerous CNDDB occurrences are located throughout the region, including the Buttonwillow Ecological Reserve, which abuts Sites 5 and 6 and the proposed Project collector lines (Dudek 2025a). This species has a high to moderate potential to occur in portions of Sites 1, 3, 5, 6, and 8 and in portions of the gen-tie line route (Appendix D.2). Moderate potential to occur on the Midway Substation site. The Midway Substation site contains suitable sparse vegetative areas and grasslands. Several CNDDB records have been recorded within 5 miles of the Midway Substation site. The closest observation occurs 1.8 miles north of the proposed Project, however this is a historical record from 1974. Another observation recorded in 2023 occurs 3.5 miles southwest of the Midway Substation site. However, this and other recent records occur either on the southwest side of the California Aqueduct, or on the northeast side of Interstate 5. Both man-made structures may reduce the likelihood of blunt-nosed leopard lizard occurring on-site (Appendix D.5).
Coast horned lizard (also known as Blainville's horned lizard) (*Phrynosoma blainvillii*)	None/SSC	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley-foothill hardwood, conifer, riparian, pine-cypress, juniper, and annual grassland habitats.	Not Observed. Moderate potential to occur. The BSA supports suitable habitat for this species. In addition, CNDDB includes multiple relatively recent occurrences in Buttonwillow Ecological Reserve located between the proposed Project areas (CDFW 2024a). This species has potential to occur in suitable habitat on Site 8 and in portions of the gen-tie line route (Appendix D.2).

Table 4.4-7: Special-Status Wildlife Species with Potential to Occur on the BSA

Common Name (*Scientific Name*)	Status (Federal/State)	Habitat	Potential to Occur
Birds			
Tricolored blackbird (*Agelaius tricolor*) (nesting colony)	BCC/SSC, ST	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agriculture.	Not Observed. Moderate potential to forage and nest. The BSA supports suitable preferred nesting habitat (freshwater and wetland habitats) as well as other nesting substrates (for example, grain fields, thistles, nettle, tamarisk). Suitable foraging habitats occur mostly where grasslands occur and are absent in areas dominated by scrub habitats and orchards. In addition, numerous CNDDB occurrences are located throughout the region (Dudek 2025a). This species has a moderate potential to occur in small portions of Sites 1, 2, 4, 5, 6, and 8 (Appendix D.2).
Burrowing owl (*Athene cunicularia*) (burrow sites and some wintering sites)	BCC/SC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows.	Observed on Sites 2 and 5. High to moderate potential to occur in other sites. The BSA and region support suitable habitat and populations of burrowing mammals, including ground squirrels. In addition, numerous CNDDB occurrences are located throughout the region, including Buttonwillow Ecological Reserve, between the Project sites (Dudek 2025a). This species was observed on Site 5, where a single burrowing owl and burrow with sign was observed during 2024 biological surveys. This species has high potential to occur in portions of Sites 3 and 8, and low to moderate potential to occur in portions of all sites and in portions of the gen-tie line route (Appendix D.2). Moderate potential to nest and moderate potential to forage on the Midway Substation site. No California ground squirrel burrows were observed on the Midway Substation site. No burrows suitable for nesting burrowing owl were observed. The grassland on-site could be used by foraging burrowing owls. Several CNDDB records have been recorded of burrowing owls within 5 miles of the Midway Substation site, and one record recorded in 2007 occurs within the Midway Substation site (Appendix D.5).

Table 4.4-7: Special-Status Wildlife Species with Potential to Occur on the BSA

Common Name (*Scientific Name*)	Status (Federal/State)	Habitat	Potential to Occur
Swainson's hawk (*Buteo swainsoni*) (nesting)	None/ST	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture.	Observed. Low to high potential to occur. The BSA supports areas of isolated and clustered trees for nesting and open areas for hunting. In addition, CNDDB occurrences are located between the Project sites, with additional occurrences scattered across the region. The closest active nest is located approximately 3.5 miles southwest of the BSA (Dudek 2025a). This species was observed flying/foraging during biological studies and has potential to nest in portions of Sites 1, 4, 5, 6, and 8 and in portions of the gen-tie line route. This species has potential to forage in all sites and the gen-tie line route (Appendix D.2). Moderate potential to nest and moderate potential to forage on the Midway Substation site. The Midway Substation site contains one large tamarisk tree with potential for nesting. No nests were observed within the tree at the time of surveys. The grassland on-site could be used by foraging Swainson's hawk. Several CNDDB records have been recorded of Swainson's hawk nests within 5 miles of the Midway Substation site. The closest record occurs 1.5 miles northeast of the Midway Substation site, recorded in 2018, where a nesting pair with two downy chicks were observed (Appendix D.5).
Loggerhead shrike (*Lanius ludovicianus*) (nesting)	None/SSC	Nests and forages in open habitats with scattered shrubs, trees, or other perches.	Observed; high potential to nest. This species was observed during field visits in 2022–2024 in Sites 5 and 8. This species is likely to nest in or adjacent to the BSA where suitable nesting trees or shrubs occur within open habitats on Sites 1 and 8 and in small portions of the gen-tie line route. It has potential to forage on all sites and along the gen-tie line route (Appendix D.2). Present on the Midway Substation site. Species was observed hunting. The tamarisk on-site could be used for nesting. The open grassland can be used for foraging. No CNDDB records have been recorded of this species within 5 miles of the Midway Substation site (Appendix D.5). However, this species is known to occur throughout the area.

Table 4.4-7: Special-Status Wildlife Species with Potential to Occur on the BSA

Common Name (*Scientific Name*)	Status (Federal/State)	Habitat	Potential to Occur
Mammals			
San Joaquin (Nelson's) antelope squirrel (*Ammospermophilus nelsoni*)	None/ST	Arid annual grassland and shrubland with saltbushes (*Atriplex* spp.), California joint fir, bladderpod, goldenbushes (*Ericameria* spp.), and snakeweed (*Gutierrezia* spp.).	Not Observed. Low to moderate potential to occur. The BSA supports suitable grassland and shrubland habitats. In addition, numerous CNDDB occurrences are located in the region, including in the Buttonwillow Ecological Reserve located between the Project sites (Dudek 2025a). However, this species was not observed during extensive field studies conducted on-site, including surveys focusing on San Joaquin antelope squirrel conducted in conjunction with burrow mapping surveys. This species has a low potential to occur within portions of Sites 1, 2, 3, 5, 6, and 8 and portions of the gen-tie line route, as well as moderate potential to occur on portions of Sites 5 and 6 and portions of the gen-tie line route (Appendix D.2).
Giant kangaroo rat (*Dipodomys ingens*)	FE/SE	On fine sandy loam soils with sparse forb vegetation and low-density alkali desert scrub.	Not Observed. Moderate potential to occur. Although the majority of CNDDB occurrences are located along and west of the California Aqueduct, approximately 3.0 miles west of the BSA, the BSA supports suitable soils and low-density habitat preferred by the species. CNDDB occurrences east of the aqueduct are located around Buena Vista Lake, over 10 miles south of the site (Dudek 2025a). This species has a moderate potential to occur on portions of Sites 1, 3, 5, 6, and 8 and in portions of the gen-tie line route (Appendix D.2).
Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*)	FE/SE	Alluvial fan and floodplain soils; habitat with one or two species of sparsely scattered shrubs and a ground cover of introduced and native annual grasses and forbs.	Observed on Site 6. Moderate to high potential to occur in other sites. The BSA supports suitable soils and habitats for this species. In addition, numerous CNDDB occurrences are located between the Project sites and region (Dudek 2025a). A dead individual Tipton kangaroo rat was observed on Site 6 during 2024 (August 22, 2024) burrow mapping surveys. A single individual was observed during small mammal trapping. Additionally, this species has a moderate to high potential to occur on portions of Sites 1 to 3, 5, 6, and 8 and in portions of

Table 4.4-7: Special-Status Wildlife Species with Potential to Occur on the BSA

Common Name (*Scientific Name*)	Status (Federal/State)	Habitat	Potential to Occur
			the gen-tie line route (Appendix D.2). Moderate potential to occur on the Midway Substation site. The Midway Substation site does contain suitable habitat of annual grassland. A few small mammal burrows were observed of potential size for Tipton kangaroo rat. The closest record is 1.6 miles northeast of the Midway Substation site, recorded in 1992. A more recent record recorded in 2011 occurs 3.2 miles west of the Midway Substation site (Appendix D.5). This record occurs on the northeast side of the California Aqueduct, as does the Midway Substation site. Therefore, Tipton kangaroo rat may occupy areas immediately surrounding the Midway Substation site.
American badger (*Taxidea taxus*)	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils.	Not Observed. Moderate potential to occur. This wide-ranging species known to occur across the San Joaquin Valley (Dudek 2025a). In addition, the BSA supports large open areas, suitable habitats, soils suitable for burrowing, and prey to support the species. This species has a moderate potential to occur on portions of Sites 1, 3, 5, 6, and 8 and in portions of the gen-tie line route (Appendix D.2).

Table 4.4-7: Special-Status Wildlife Species with Potential to Occur on the BSA

Common Name (*Scientific Name*)	Status (Federal/State)	Habitat	Potential to Occur
San Joaquin kit fox (*Vulpes macrotis mutica*)	FE/ST	Grasslands and scrublands, including those that have been modified; oak woodland, alkali sink scrubland, vernal pool, and alkali meadow.	Not Observed. Moderate to high potential to occur. This species is known to occur across the San Joaquin Valley (Dudek 2025a). In addition, the BSA supports large open areas, suitable habitats, soils suitable for burrowing, and prey to support the species. This species has high potential to occur on portions of Sites 3 and 8, and a low to moderate potential to occur in portions of all sites and in portions of the gen-tie line route (Appendix D.2). Potential dens suitable for use as denning or refugia by SJKF were observed throughout the proposed Project. However, none had sign (scat, fresh digging, prey remains, tracks, etc.) of SJKF use. Moderate potential to occur on the Midway Substation site. The Midway Substation site provides suitable habitat where this species may forage. No California ground squirrel burrows were observed on the Midway Substation site. However, San Joaquin kit fox has the potential to use the site to move through the area. Additionally, this species has been recorded in the CNDDB in several locations within 5 miles of the Midway Substation site, and there are two records that overlap with Midway Substation site boundaries, however both records are historical, from 1975 and 1992. Another record from 2007 occurs 3.8 miles southwest of the Midway Substation site (Appendix D.5).

Status Legend:

Federal: BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern; FE: Federally listed as endangered; FPT: Federally proposed for listing as threatened; FT: Federally listed as threatened

State: FP: CDFW Fully Protected species; SC: State candidate for listing as threatened or endangered; SE: State listed as endangered; SSC: CDFW species of special concern; ST: State listed as threatened

Key: CDFW = California Department of Fish and Wildlife; CNDDB = California Natural Diversity Database; gen-tie = generation transmission line route; SJKF = San Joaquin kit fox; SR = State Route

Crotch's Bumblebee

Crotch's bumble bee (*Bombus crotchii*) is a State candidate for listing as threatened. This species ranges throughout much of central and Southern California, along the central and Southern California coasts, through the Central Valley, and in the surrounding foothills. However, it now appears to be absent from much of its former range, and its population appears to have declined drastically, especially in its former stronghold in the Central Valley (Dudek 2025a). Crotch's bumble bee occurs in open grassland and scrub communities supporting suitable floral resources. The species nests primarily underground and may be reliant on small mammal burrows.

Crotch's bumble bee was incidentally observed flying and foraging in Site 1 during 2024 botanical surveys. Crotch's bumble bee has a moderate potential to occur in portions of Sites 1 through 3, 5, 6, and 8 and in portions of the gen-tie line route (Appendix D.2), as these areas contain open grassland, saltbush scrub, and alkali sink, which has floral resources including the genera *Phacelia*, *Clarkia*, *Eriogonum*, and *Eschscholzia* present for part of the blooming season in the spring. Crotch's bumble bee is a generalist forager and could forage anywhere within the BSA where suitable floral resources are present. The BSA supports limited suitable floral resources; the actual area occupied by specific resources with potential to support nesting for the species is likely a much smaller portion of the entire BSA.

Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp is federally listed under the ESA. Vernal pool fairy shrimp are small freshwater crustaceans belonging to the branchiopod order Anostraca. Vernal pool fairy shrimp are found primarily in vernal pools but can occur in a wide variety of other seasonal wetland habitats, including alkaline pools, artificial and natural seasonal wetlands, ephemeral drainages, dozer scrapes and road ruts, rock outcrop pools, roadside ditches, stream oxbows, stock ponds, vernal swales, and artificial or roadside vernal pools.

Although there are no nearby occurrences of this species documented in the California Natural Diversity Database (Dudek 2025a), the BSA is within the known range of vernal pool fairy shrimp. During the jurisdictional surveys, several areas were observed to contain fairy shrimp within pooled water (Appendix D.2). During the 2024 habitat assessment, the BSA contained approximately 443 acres of potentially suitable branchiopod habitat. Specifically, vernal pool fairy shrimp have potential to occur in portions of Sites 1, 2, 3, 4, and 8 (Appendix D.2).

Western Spadefoot

Western spadefoot (*Spea hammondii*) is proposed for federal listing as a threatened species. It is also a California SSC. In September 2025, a petition to list the western spadefoot as threatened or endangered under CESA was submitted to the California Fish and Game Commission. As of November 2, 2025, the Commission has not determined whether to designate the species as a listing candidate. Western spadefoot spend most of their time (8-10 months of the year) approximately 3 feet belowground in burrows in upland habitat, emerging during wet conditions to breed (USFWS 2023c). When active above ground, the species is nocturnal and avoids light. Documented

average dispersal away from breeding pools was 131 feet, with more movement occurring with rain. Western spadefoots favor areas with grassland cover for upland habitat. Burrow sites tend to have a high amount of duff or dead vegetation from previous years and burrows are constructed in soils that are relatively sandy and friable as these soil attributes facilitate both digging and water absorption. Breeding occurs from January to May in vernal pools formed by winter or spring rains.

One spadefoot was incidentally observed along the northern edge of the BSA during small mammal trapping in Site 8 (Appendix D.2). Although no specific breeding pond surveys have been conducted, this species has low to moderate potential to breed during wet years in small suitable areas of the BSA and within the Buttonwillow Ecological Reserve.

Bakersfield Legless Lizard

The Bakersfield legless lizard (*Anniella grinnelli*) is a California SSC. The known range of the Bakersfield legless lizard is restricted to the southern San Joaquin Valley and the eastern side of the Carrizo Plain.

The BSA supports loose soils for burrowing and other refugia. Although not incidentally observed during biological surveys conducted to date, this species has a low to moderate potential to occur in suitable habitat on Sites 1, 2, 3, 5, 6, and 8 and in portions of the gen-tie line route (Appendix D.2).

California Glossy Snake

California glossy snake (*Arizona elegans occidentalis*) is a California SSC. This species is nocturnal and spends the day in burrows. It is generally active from late February until November, with peak activity in May. California glossy snake is found in a wide variety of habitat types, including grasslands, shrublands, and chaparral.

The BSA supports suitable scrub and grassland habitats for California glossy snake. Although not incidentally observed during biological surveys conducted to date, this species has moderate potential to occur in suitable habitat on Sites 1, 2, 3, 5, 6, and 8 and in portions of the gen-tie line route (Appendix D.2).

San Joaquin Coachwhip

The San Joaquin coachwhip (*Coluber flagellum ruddocki*) is a California SSC. It inhabits arid environments with sparse vegetation, often burrowing in rodent holes for refuge and oviposition.

The BSA supports suitable scrub and grassland habitats for San Joaquin coachwhip. Although not incidentally observed during biological surveys conducted to date, this species has moderate potential to occur in suitable habitat on Sites 1, 2, 3, 5, 6, and 8 and in portions of the gen-tie line route (Appendix D.2).

Blunt-Nosed Leopard Lizard

The blunt-nosed leopard lizard is listed as a federal and state endangered species and is a state fully protected species. It is included in the San Joaquin Valley Recovery Plan. This species occurs in semi-arid habitats within the southern Central Valley, Cuyama Valley, and Panoche Valley, at elevations between 100 and 2,400 feet. Preferred habitats are typically flat, sparsely vegetated grasslands with large open areas with scattered shrubs for cover, and sandy washes. The species spends most of the year underground in abandoned small mammal burrows, with adults surfacing in the spring and early summer to breed and feed. Young hatch in July and August.

Based on the habitat assessment and CNDDB database records, blunt-nosed leopard lizard has a moderate to high potential to occupy all areas of the BSA that contain natural open space generalized as the alkali sink and saltbush scrub vegetation communities, including Sites 1, 3, 5, 6, and 8 and portions of the gen-tie line route (Appendix D.2). Additionally, several collector lines are proposed along areas of saltbush scrub and alkali sink, including the Buttonwillow Ecological Reserve along 7th Standard Road (Appendix D.2). CNDDB records occur within these areas, which have also been the locations for blunt-nosed leopard lizard training workshops conducted by the Wildlife Society in conjunction with CDFW; therefore, collector line routes do have potential for blunt-nosed leopard lizard presence (Dudek 2025a).

Burrow surveys conducted for special-status wildlife species resulted in several small mammal burrows that could be used by this species within the natural areas of saltbush scrub and alkali sink, including the Buttonwillow Ecological Reserve. Surveys were conducted along the margins of all agricultural fields adjacent to these natural areas. A few small mammal burrows were recorded within the agricultural edges for orchards. None of these burrows were observed along edges of intensively managed, irrigated crop fields, as burrows would likely be flooded during irrigation. However, this does not preclude the potential for this species to use the adjacent agricultural fields for hunting prey. No leopard lizards were observed during the habitat assessment or incidentally during the jurisdictional delineation, vegetation mapping, or botanical surveys conducted in 2024, during the active period of the blunt-nosed leopard lizard, or during burrow mapping/San Joaquin Antelope squirrel focused surveys conducted in 2024.

Blunt-nose leopard lizard were not observed during the biological reconnaissance survey in 2024, but has moderate potential to occur in the Midway Substation site (Appendix D.5). The Midway Substation site contains suitable, yet sparse vegetated areas including grasslands for this species.

Coast Horned Lizard

Coast horned lizard (*Phrynosoma blainvillii*) is a California SSC. This species has a large range that covers much of central and Southern California, extending from Shasta County in the north, south to San Diego County. Coast horned lizards occur in valley-foothill hardwood forests and conifer, riparian, pine-cypress, juniper, and annual grassland habitats.

The BSA supports suitable grassland and riparian habitat with sandy soils for this species. Although not incidentally observed during biological surveys conducted to date, this species has moderate potential to occur in suitable habitat on Site 8 and in portions of the gen-tie line route (Appendix D.2).

Tricolored Blackbird

Tricolored blackbird (*Agelaius tricolor*) is listed as threatened under CESA and is a California SSC that is protected for its nesting colonies. It typically nests in freshwater marshes with dense growths of emergent vegetation dominated by cattails or bulrushes but has also established colonies in willows, blackberries, and a variety of other types of dense, herbaceous vegetation (for example, thistles and nettles). Tricolored blackbirds forage in a variety of habitats (for example, grasslands and croplands) where high densities of suitable insect prey are found.

Suitable nesting habitats were observed during the habitat assessment at various constructed farm ponds within the BSA at Sites 1, 2, 4, and 5; a small portion of Site 6; and Site 8 (Appendix D.2). The farm ponds were observed to have cattails and bulrushes; however, no tricolored blackbirds were observed.

Burrowing Owl

Burrowing owl, a California SSC and candidate for state listing under CESA, occurs in a wide range of mostly open habitats in California, including grasslands, shrub-steppe, deserts, pastures, and agricultural areas. Their range within California extends from Redding south to San Diego, east through the Mojave Desert, and west to San Francisco and Monterey. Typical burrowing owl habitat includes short vegetation, somewhat flat terrain, and the presence of small mammal burrows. The key characteristics of suitable habitat are moderately low and sparse vegetation, a prey base of small mammals and insects, and burrows or similar sites (for example, rock piles) for shelter.

The BSA is a mix of general agriculture, orchard, and natural habitats (for example, saltbush scrub and alkali sink), all of which are known to be occupied or have potential for occupation by burrowing owl. Of these, saltbush scrub and alkali sink areas have the highest potential for nesting and foraging due to a high presence of prey species such as kangaroo rats, insects, and reptiles. Burrowing owl has potential to occur in all sites and portions of the gen-tie line route that contain suitable habitat (Appendix D.2). General agricultural areas within the BSA consisting of cotton, alfalfa, or other row crops occupy the largest land area throughout the BSA. Due to the amount of maintenance necessary for this area, it is considered a low to moderate potential for burrowing owl to forage within these types of land covers due to a limited prey base of kangaroo rats and ground squirrels. However, these sites do contain a potential for denning along the margins due to a less active maintenance regime and more abundant California ground squirrel burrows, which are often used by burrowing owl. Orchards, the second largest land cover on the BSA, are considered to be less likely for both nesting and foraging for burrowing owl (Appendix D.2). No burrowing owls were observed during the habitat assessment or incidentally during the jurisdictional delineation or vegetation mapping.

Numerous potentially suitable burrowing owl burrows or burrow complexes were observed during focused survey effort for burrowing owl burrows conducted in 2024 (Appendix D.2). Suitable burrowing owl burrows noted within each site were as follows: 1 in Site 1, 11 in Site 2, 3 in Site 4, 15 in Site 5, 72 in Site 6, 74 in Site 8, and 97 in the gen-tie line route (Appendix D.2). One occupied burrowing owl burrow was observed in Site 5 during the botanical survey effort in 2024. Burrowing owl was also detected at Site 2 during small mammal trapping (Appendix D.2). The burrow was documented with likely one owl present, as well as whitewash and pellets laid about the burrow opening. No burrowing owls or burrowing owl sign (whitewash, pellets, feathers, or prey remains) were observed during the field survey within the other sites.

Burrowing owl were not observed during the biological reconnaissance survey in 2024, but has moderate potential to nest and forage in the Midway Substation site (Appendix D.5). The Midway Substation site contains suitable, yet sparse vegetated areas including grasslands for this species.

Swainson's Hawk

Swainson's hawk is state listed as threatened under CESA. It nests in California in the Central Valley and smaller adjacent valleys, the Klamath Basin, the Northeastern Plateau, Lassen County, and the Mojave Desert. It breeds in riparian areas, stands of trees in agricultural environments, oak savanna, Joshua trees in the Mojave Desert, and juniper–sage flats. In the San Joaquin Valley, it nests in riparian areas and in isolated tree clusters, often near rural residences or other areas with some human disturbance.

Across their breeding range, Swainson's hawks forage in open habitats dominated by grasses, as well as some open shrublands and open, small woodlands. However, the species has adapted to agricultural fields, particularly in the Central Valley of California where such areas have proliferated at the expense of natural vegetation communities and where remaining natural areas have been permanently altered by the introduction of non-native plant species that now dominate these areas.

Most of the BSA is disturbed as a result of ongoing agricultural activities; as a result, it provides little in the way of suitable nesting habitat for Swainson's hawks. However, a few isolated trees and small woodland areas are scattered within the Project sites, primarily along roadsides or in association with residences or farmyards, and provide suitable nesting resources for Swainson's hawk (Appendix D.2). Additionally, orchards, mainly almonds, are present on the BSA and provide low to moderate potential for Swainson's hawk nesting. Swainson's hawk has potential to nest in Sites 1, 4 through 6, and 8 and in portions of the gen-tie line route that contain suitable habitat (Appendix D.2). The general agriculture of alfalfa and wheat, grasslands, saltbush scrub, and alkali sink areas provides suitable foraging with a prey base of small rodents and insects (Appendix D.2). A total of 33 Swainson's hawks were incidentally observed perched, foraging/hunting, or soaring over Sites 2, 3, 5, 6, and 8 between April and August 2024 during jurisdictional delineations, vegetation mapping, botanical surveys, and habitat assessments. Sites 6 and 8 had the most observations, with 11 at each site. Sites 2 and 5 each had 4 observations in August 2024, and Site 3 had 1 observation in April 2024. The gen-tie line route had 2 observations in August 2024. However, no nesting Swainson's hawks were incidentally observed. The closest active nest is

located approximately 3.5 miles southwest of the BSA (Dudek 2025a). Swainson's hawk nesting habitat is present throughout the BSA.

No Swainson's hawk or nests were observed during the biological reconnaissance survey in 2024, but the species has moderate potential to nest in the Midway Substation site (Appendix D.5). The Midway Substation site contains one large tamarisk tree with potential for nesting. Additionally, there is potential for Swainson's hawk to forage within the grassland habitat.

Loggerhead Shrike

Loggerhead shrike (*Lanius ludovicianus*) is a USFWS Bird of Conservation Concern and a California SSC. Preferred habitats for loggerhead shrike are open areas that include scattered shrubs, trees, posts, fences, utility lines, or other structures that provide hunting perches with views of open ground, as well as nearby spiny vegetation or human-made structures. Shrikes occur most frequently in riparian areas along woodland edges, grasslands with sufficient perch and butcher sites, scrublands, and open canopied woodlands, although they can be quite common in agricultural and grazing areas, and can sometimes be found in mowed roadsides, cemeteries, and golf courses. Shrikes occur only rarely in heavily urbanized areas.

This species was observed during field visits in 2022 through 2024 in Sites 5 and 8. There is high potential for this species to nest in or adjacent to the BSA where suitable nesting trees or shrubs occur within open habitats on Sites 1 and 8 and along small portions of the gen-tie line route; it has potential to forage on all sites and along the gen-tie line route (Appendix D.2).

Loggerhead shrike were observed foraging during the biological reconnaissance survey in 2024. Therefore, this species is expected to be present in the Midway Substation site (Appendix D.5). Additionally, the Midway Substation site contains one large tamarisk tree with potential for nesting. Additionally, there is potential for loggerhead shrike to forage within the grassland habitat.

Giant Kangaroo Rat

The giant kangaroo rat is listed as endangered under the ESA and CESA. It is endemic to the San Joaquin and Tulare Basins in the southern end of the Great Central Valley in California. The giant kangaroo rat's habitat consists of annual grasslands, although the species may also utilize alkali or saltbush scrub habitats at elevations up to 2,850 feet. Giant kangaroo rats require level terrain and sandy loam soils for burrowing.

The majority of CNDDB occurrences of this species is located to the west of the BSA; however, the BSA does provide suitable soils and sparse vegetative areas which have moderate to high potential for giant kangaroo rat to occur in Sites 1, 3, 5, 6, and 8 and a portion of the gen-tie line route (Figures 20A–20G, Giant Kangaroo Rat and American Badger Wildlife Potential).

Burrow surveys conducted within the BSA resulted in several small mammal burrows suitable in size and shape for giant kangaroo rat within the BSA. Most small mammal burrows were observed within the nonanthropogenic areas of saltbush scrub, alkali sink, and non-native grassland areas; however, burrows also occurred within the margins of the agricultural areas in proximity to these areas. Additionally, several collector lines are proposed along areas of saltbush scrub and alkali sink, including the Buttonwillow Ecological Reserve along 7th Standard Road (Appendix D.2). Although no CNDDB records occur within these areas, the overall soil and vegetation in these areas provides suitable habitat for giant kangaroo rat (Dudek 2025a). Sites 1, 3, and 5 through 8 and the collector lines had both small mammal burrows and suitable habitat with potential to support giant kangaroo rat (Appendix D.2).

Although numerous small mammal burrows were observed in the small mammal trapping survey area with many that were characteristic of kangaroo rat activity, no distinctive giant kangaroo rat burrowing activity was noted within the vicinity of the trap lines sampled.

Tipton Kangaroo Rat

The Tipton kangaroo rat is listed as endangered under the ESA and CESA and is a nocturnal species of rodent that is native to the San Joaquin Valley, California. Tipton kangaroo rats prefer open, desert communities with large alkali scalds, no evidence of past or present agricultural activity, sparse ground cover with bush seepweed, and few invasive grasses. Tipton kangaroo rats have been limited to valley saltbush scrub, valley sink scrub, and grassland habitats with shrubs (for example, saltbushes, iodine bush, pale-leaf goldenbush, honey mesquite, and seepweed). Burrow systems are less than 10 inches (25 centimeters) deep, which are commonly found in elevated mounds, berms of roads, canal embankments, railroad beds, and bases of shrubs and fences where windblown soils accumulate.

Based on the habitat assessment and CNDDB records, Tipton kangaroo rat has moderate to high potential to occupy all areas of natural open space, generalized here as the alkali sink and saltbush scrub areas, in Sites 1, 3, 5, 6, and 8 and in a portion of the gen-tie line route (Appendix D.2). Tipton kangaroo rats are known to occur within the Goose Lake area northwest of the BSA. The northern edge of the BSA abuts the southernmost edge of Goose Lake (Appendix D.2). The land covers in this area are a mixture of agriculture, shrublands, grassland, wetlands, and vernal pools. Because of the proximity of the BSA to Goose Lake and CNDDB records, there is a potential for Tipton kangaroo rat to occupy areas that are not under agricultural production (Appendix D.2).

Burrow surveys conducted on the BSA resulted in several small mammal burrows suitable in size and shape for Tipton kangaroo rat on all Project sites.

Most small mammal burrows were observed within the natural areas of saltbush scrub, alkali sink, and non-native grassland areas; however, burrows also occurred within the margins of the agricultural areas in proximity to these areas. Additionally, several collector lines are proposed along areas of saltbush scrub and alkali sink, including the Buttonwillow Reserve properties along 7th Standard Road, and CNDDB records occur within these areas (Appendix D.2). During burrow surveys, one dead Tipton kangaroo rat was incidentally observed along the eastern edge of Site 6

(Appendix D.2). Sites 1 through 3 and 5 through 8 and the collector lines had small mammal burrows and suitable habitat with potential to support Tipton kangaroo rat (Appendix D.2).

During small mammal trapping, one Tipton kangaroo rat individual was detected (Appendix D.2). Therefore, Tipton kangaroo rat are present in the vicinity of the capture location. This capture location was along a parcel that borders the CDFW Buttonwillow Ecological Reserve.

Tipton kangaroo rat were not observed during the biological reconnaissance survey in 2024, but have moderate potential to occur in the Midway Substation site (Appendix D.5). Small mammal burrows were observed that could be used for burrowing and the Midway Substation site contain suitable grassland habitat for this species.

Buena Vista Lake Ornate Shrew

The Buena Vista Lake ornate shrew is currently listed under the ESA and is considered a California SSC. The species has been detected at the Kern National Wildlife Refuge, Kern Fan Water Recharge Area, Kern Lake, Semitropic Ecological Reserve, and Atwell Island across the years. The shrews are commonly found near open water in areas with a thick layer of leaf litter or a dense vegetative understory. These areas are characterized by moist soil and dense cover from riparian or emergent marsh vegetation (for example, rushes, sedges, or cattails). Areas with moist soil and downed logs and branches are common at sites where shrews have been found and are likely important to shrew habitat because they attract prey species (for example, insects, other invertebrates, and earthworms) and provide protection from predators.

The north edge of the BSA abuts the southernmost edge of Goose Lake and has been designated as critical habitat for the shrew (Appendix D.2). Because of the proximity of the BSA to Goose Lake and critical habitat, the areas that are not under agricultural production in Site 8 were surveyed via camera for Buena Vista Lake ornate shrew (Appendix D.2). Camera surveys were conducted in suitable habitat within Site 8 at seven locations. No other areas of the BSA provide suitable habitat for this species to occur. This species was not observed during camera surveys.

San Joaquin Kit Fox

The San Joaquin kit fox is listed as endangered under the ESA and threatened under the CESA. This species lives in annual grasslands or grassy open habitats with scattered shrubby vegetation. It requires loose-textured sandy soils for burrowing and a suitable prey base of rodents.

The BSA is a mix of general agriculture, orchard, and habitats with native vegetation, generalized here as saltbush scrub and alkali sink, all of which are known to be occupied or have potential for occupation by kit fox. Of these, saltbush scrub and alkali sink areas have the highest potential for kit fox to use for denning and foraging due to a high presence of prey species such as kangaroo rats, insects, rabbits and hares, but all sites and portions of the gen-tie line route contain at least low to moderate potential for San Joaquin kit fox (Appendix D.2). Due to the amount of maintenance necessary for this area, it is considered a low to moderate potential for this species to forage within these types of land covers due to a limited prey base of kangaroo rats and ground squirrels.

However, these sites do contain a potential for denning along the margins due to a less active maintenance regime. Orchards, the second largest land cover within the BSA, are less likely for both denning and foraging for kit fox. The intensive management within orchards along with rodenticide usage limits the prey base kit fox are seeking.

Den surveys for San Joaquin kit fox were conducted on several dates in 2024. During the surveys, several burrows or burrow complexes meeting the minimum size criteria were identified and examined (Appendix D.2). Of these, none were confirmed to be San Joaquin kit fox natal dens or active dens. Furthermore, no sign (for example, scat, prey remains, or digging) or evidence of recent use by San Joaquin kit fox was observed.

Because the number of kit foxes can vary greatly from year to year, and successful dispersal may allow individuals to occupy areas between established populations, it is possible that transient individual San Joaquin kit foxes could occur intermittently within the BSA during foraging or dispersal events. Although it is unlikely that a kit fox would be denning within an active orchard or general agricultural field, it cannot be ruled out that they could move into an area left fallow or that they could use the area for movement.

San Joaquin kit fox were not observed during the biological reconnaissance survey in 2024, but has moderate potential to occur in the Midway Substation site (Appendix D.5). Because San Joaquin kit fox is highly mobile, individuals may move through the Midway Substation site to forage.

American Badger

American badger is a California SSC. American badger typically occurs in open, sparsely vegetated habitats, but also uses modified habitats (for example, agriculture). It is found in dry, open areas with friable soils.

The BSA supports large open areas, suitable habitats, soils suitable for burrowing, and prey to support the species. Although not incidentally observed during biological surveys conducted to date, this species has moderate potential to occur in suitable habitat on Sites 1, 3, 5, 6, and 8 and in portions of the gen-tie line route (Appendix D.2).

San Joaquin Antelope Squirrel

The San Joaquin antelope squirrel is listed as a state threatened species. This species is typically found on open, gently sloping land with shrubs, at an elevation of 200 to 1,200 feet ASML, and requires widely scattered shrubs as well as forbs and grasses in terrain broken with gullies and washes. San Joaquin antelope squirrels live in burrows either of their own construction or dug by kangaroo rats or other small mammals.

San Joaquin antelope squirrel was not observed during the survey efforts conducted in Sites 1, 2, 3, and 8; therefore, their potential to occur on these sites is determined to be low. There is a low to moderate potential for San Joaquin antelope squirrel to occur in Sites 5 and 6 and in portions of the gen-tie line route (Appendix D.2). These areas are located adjacent to the Buttonwillow Ecological

Reserve and were not accessible during the surveys conducted to inform this analysis of impacts to biological resources.

4.4.3 Regulatory Setting

Federal, state, regional, and local biological resource policies and regulations applicable to the proposed Project are identified below.

Federal

Endangered Species Act of 1973 (16 United States Code, Sections 1531–1543)

The ESA (16 United States Code [USC], Sections 1531 et seq.) was enacted to provide a means by which endangered and threatened species and the ecosystems on which they depend may be conserved. The ESA and the implementing regulations (Code of Federal Regulations [CFR] Title 50, Section 17.1 et seq.) include provisions for the protection and management of federally listed threatened or endangered plants and animals and their critical habitats. Generally, the USFWS regulates upland and freshwater species, and the National Marine Fisheries Service (NMFS) oversees provisions for protection of anadromous, marine, and estuarine species. Section 4 of the ESA requires the USFWS and/or NMFS to make determinations on whether any species should be listed as an endangered or threatened species and to designate critical habitat for endangered and threatened species (16 USC 1533). Critical habitat is defined in the ESA as an area occupied by a listed species with physical or geographical/biological features essential to the species conservation or locations not currently occupied by listed species which are essential to the species conservation. 50 CFR 424.02 Section 9 of the ESA (16 USC 1538, 50 CFR 17.21402 et seq.) prohibits the unauthorized take of any species that is listed as threatened or endangered under the ESA. Take that is incidental to, and not the purpose of, the carrying out of otherwise lawful activities may be permitted under Section 7 and Section 10 of the ESA.

Section 7 of the ESA requires federal agencies to consult with the USFWS and/or NMFS and obtain a biological opinion prior to carrying out any federal program or agency action that may adversely affect threatened or endangered species. The ESA Section 7 consultation process and biological opinion includes an evaluation of whether a federal project, including issuance of an incidental take permit (ITP) under ESA Section 10, is likely to jeopardize the continued existence and recovery of any endangered or threatened species or result in the destruction or adverse modification of critical habitat designated for the species. If a proposed federal action would result in take of a listed animal species or adverse modification of designated critical habitat, ESA Section 7 requires the USFWS to provide an incidental take statement that includes reasonable and prudent measures and terms and conditions implementing those measures, to minimize the effects of such take. Federal agency and applicant compliance with the incidental take statement exempts potential take or adverse critical habitat modification resulting from the proposed action from the prohibitions in Section 9 of the ESA.

Section 9 lists actions that are prohibited under the ESA. Although take of a listed species is prohibited, it is allowed when it is incidental to an otherwise legal activity. Section 9 prohibits take of listed species of fish, wildlife, and plants without special exemption. The definition of "harm" includes significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns related to breeding, feeding, or shelter. "Harass" is defined as actions that create the likelihood of injury to listed species by disrupting normal behavioral patterns related to breeding, feeding, and shelter significantly.

Section 10 of the ESA provides mechanisms for authorizing otherwise prohibited take through the ITP process for a proposed action that does not involve a discretionary approval by a federal agency. Under Section 10(a) of the ESA, an ITP can also be obtained by a non-federal actor provided that permit applicant submits to the USFWS a habitat conservation plan (often termed an "HCP," or a "multiple species habitat conservation plan" when addressing more than one species) that satisfies Section 10(a)(2)(A) of the ESA, and provided the USFWS determines that the habitat conservation plan meets the issuance criteria of Section 10(a)(2)(B) of the ESA. Section 10(a)(2)(B) of the ESA requires the following criteria be met before the USFWS may issue an ITP:

(1) The taking will be incidental;

(2) The applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking.;

(3) The applicant will ensure that adequate funding for the habitat conservation plan and procedures to deal with unforeseen circumstances will be provided;

(4) The taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild; and

(5) The applicant will ensure that other measures that the USFWS may require as being necessary or appropriate will be provided.

The USFWS is required to annually identify species that are candidates for federal ESA listing, including species that USFWS records indicate are subject to sufficient biological vulnerability and threats to support a proposal for listing but for which a proposal has not been published due to other listing priorities. The list of candidate species is intended to: (1) notify the public that species face survival threats; (2) provide advance knowledge of potential listings for consideration by environmental planners and developers; (3) provide information that may stimulate and guide conservation efforts; (4) request additional input regarding candidate species; and (5) request information for setting listing priorities (USFWS 2023a).

). The USFWS and other federal agencies, including the Bureau of Land Management, may also informally identify sensitive species or species of concern. These species are not subject to ESA or other federal statutory protection but are considered by the USFWS and other agencies when evaluating the effects of a potential action or development resource management plans, including recovery plans under the ESA.

Migratory Bird Treaty Act (USC Title 16, Sections 703–712)

The Migratory Bird Treaty Act (MBTA) (16 USC 703–712) includes provisions for the protection of migratory birds and prohibits the non-permitted take of most migratory birds. Take under the MBTA is defined as to "pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export, any part, nest, or egg of any such bird, or any product, whether or not manufactured" (16 USC 703(a)). Apart from certain limited exceptions, the USFWS has not implemented an ITP program for the MBTA.

Bald and Golden Eagle Protection Act (USC Title 16, Section 668, Enacted by 54 Statute 250)

The Bald and Golden Eagle Protection Act (BGEPA) of 1940 prohibits any form of possession or take of bald eagles and golden eagles, including actions to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb" an eagle (16 USC 668c). To disturb a bald and golden eagle means "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available: (1) injury to an eagle; (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior" (72 FR 31132; 50 CFR 22.3). A 1962 amendment created a specific exemption for possession of an eagle or eagle parts (for example, feathers) for religious purposes of American Indian tribes.

Permits for the incidental, or unintentional, take of these species were first established on November 10, 2009, and then revised in December 2016 (USFWS 2016) and September 2022 (USFWS 2022) by USFWS. The permit regulations authorize the limited take of these species associated with certain otherwise lawful activities, including take in the form of disturbance or actual physical take of eagles (50 CFR 22.26), and the removal of eagle nests (50 CFR 22.27). The regulations establish a hierarchy of take permits that could be issued for specific categories of activity to ensure that the total amount of authorized incidental take does not adversely affect the eagle populations in the western and eastern United States.

The 2016 revisions created a permitting framework for more efficient implementation. USFWS modified the definition of the BGEPA's "preservation standard," which requires that permitted take be compatible with the preservation of eagles. USFWS further removed distinction between standard and programmatic permits, codifying standardized mitigation requirements, and extending the maximum permit duration for eagle incidental take permits (50 CFR 22.26). The regulations also include a number of additional revisions to the eagle nest take regulations at 50 CFR 22.27, as well as revisions to the permit fee schedule at 50 CFR 13.11; new and revised definitions in 50 CFR 22.3; revisions to 50 CFR 22.25 (permits for golden eagle nest take for resource development and recovery operations) for consistency with the Section 22.27 nest take permits; and two provisions that apply to all eagle permit types (50 CFR 22.4 and 22.11).

In September 2021, USFWS published an Advance Notice of Proposed Rulemaking seeking input from Tribal governments, the public, and the regulated community on potential approaches for further expediting and simplifying the permit process authorizing incidental take of eagles. In September 2022, USFWS published a proposed rule (2022a) to consider revisions to regulations authorizing the issuance of permits for eagle incidental take and eagle nest take under the BGEPA (16 USC 668–668d). The purpose of these revisions is to increase the efficiency and effectiveness of permitting, facilitate and improve compliance, and increase the conservation benefit for eagles. The public comment period for the proposed rule was extended to December 29, 2022, and is currently under review following public comment (USFWS 2022a).

The USFWS has indicated that, other than permits for religious and ceremonial activities, BGEPA take permits will generally not be available except for certain "programmatic" activities that may disturb or otherwise take eagles on an ongoing operational basis. To date, programmatic BGEPA permit guidance has been developed by the USFWS for wind and other renewable energy projects, including the development of Avian Protection Plans Eagle Conservation Plans. A very limited number of programmatic permits for renewable energy development have been issued by the USFWS.

On February 12, 2024, USFWS issued a final rule revising its eagle permit program to streamline compliance and improve conservation outcomes. The rule introduces general permits for low-risk activities such as wind energy generation, power line infrastructure, and certain bald eagle disturbance or nest take scenarios.

Clean Water Act (USC Title 33, Sections 1251–1376)

The federal Clean Water Act (CWA) was enacted to protect the nation's waters. Section 404 of the CWA authorizes the Secretary of the Army, acting through USACE, to issue permits regulating the discharge of dredged or fill materials into "navigable waters at specified disposal sites."

Waters of the United States (WOTUS) are defined in CFR, Title 33, Section 328.3, subdivision (a) to include navigable waters, perennial and intermittent streams, lakes, rivers, and ponds, as well as wetlands, marshes, and wet meadows. The CWA extends additional protection to certain sensitive aquatic habitats, including wetlands. Authorization to discharge dredge or fill materials into sensitive aquatic habitats requires that an applicant demonstrate the proposed activity represents the least environmentally damaging practicable alternative for the proposed Project. A proposed discharge into federally regulated wetlands must also not result in a net loss of wetland functions or values (USACE, DoD, and EPA 2008). All authorizations to discharge dredge or fill materials into WOTUS must demonstrate that the projects have been designed to avoid, minimize, and mitigate for all unavoidable effects on WOTUS. The location and extent of WOTUS are formally identified by the USACE through a jurisdictional delineation process applying technical criteria described in various guidance documents issued by the USACE, including the 1987 Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2) (USACE 2010), A Field Guide to the Identification of the Ordinary High Water Mark in the Arid

West Region of the Western United States (Lichvar and McColley 2008), and in USACE Regulatory Guidance Letter No. 05-05 (USACE 2005).

The section 404 permit program also applies to the dredge and fill of federal wetlands. Physically, a federal wetland must meet three specified criteria: (1) less permeable soils more likely to cause rainwater and other surface water flows to pond; (2) seasonal ponding during specified types of rain events; and (3) the presence of plants that are consistent with seasonal ponding.

However, the extent to which a wetland area meets the applicable criteria to qualify as federally jurisdictional has been qualified due to certain, important legal decisions and interpretations. On December 30, 2022, the U.S. Environmental Protection Agency (EPA) and Department of the Army (the agencies) announced a "final rule" (which was revised by the 2023 final rule described below) founded upon the pre-2015 definition of "waters of the United States," updated to reflect consideration of Supreme Court decisions, the science, and the agencies' technical expertise. The rule restores fundamental protections so that the nation will be closer to achieving Congress' direction in the CWA that WOTUS be fishable and swimmable. It also ensures that WOTUS support recreation and wildlife. In this rule, consistent with the general framework of the 1986 regulations, the agencies interpret WOTUS to include:

- Traditional navigable waters, the territorial seas, and interstate waters ("paragraph (a)(1) waters");
- Impoundments of WOTUS ("paragraph (a)(2) impoundments");
- Tributaries to traditional navigable waters, the territorial seas, interstate waters, or paragraph (a)(2) impoundments when the tributaries meet either the relatively permanent standard or the significant nexus standard ("jurisdictional tributaries");
- Wetlands adjacent to paragraph (a)(1) waters, wetlands adjacent to and with a continuous surface connection to relatively permanent paragraph (a)(2) impoundments, wetlands adjacent to tributaries that meet the relatively permanent standard, and wetlands adjacent to paragraph (a)(2) impoundments or jurisdictional tributaries when the wetlands meet the significant nexus standard ("jurisdictional adjacent wetlands"); and
- Intrastate lakes and ponds, streams, or wetlands not identified in paragraphs (a)(1) through (4) that meet either the relatively permanent standard or the significant nexus standard ("paragraph (a)(5) waters").

This rule codifies several exclusions from the definition of "WOTUS," including longstanding exclusions for prior converted cropland and waste treatment systems, and for features that were generally considered non-jurisdictional under the pre-2015 regulatory regime (EPA 2023). The EPA and USACE amended the 2022 "final rule" on August 29, 2023, to conform with the Supreme Court's decision in *Sackett et ux v. Environmental Protection Agency et al* (2023). This conforming rule became effective on September 8, 2023, and requires that for a wetland to be under federal jurisdiction, it must have a continuous surface connection to a relatively permanent body of water. The original 2023 rule was finalized in January 2023 but was superseded by the conforming rule following the Supreme Court's ruling.

State

California Endangered Species Act (California State Fish and Game Code Section 2050 et seq.)

The CESA (California Fish and Game Code [CFGC] 2050 et seq.), which CDFW implements, is intended to conserve, protect, restore, and enhance any state-protected endangered or threatened species and its habitat. CESA prohibits the unauthorized take of species listed as threatened or endangered under the act. "Take" under state law is defined as actions to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" a state-listed species (CFGC Section 86). The CFGC authorizes the take of endangered, threatened, or candidate species through an ITP that may be issued by the CDFW under Section 2081. Alternatively, an incidental take of CESA-listed species may be authorized under Section 2080.1, which allows the CDFW to find that take authorization issued under the federal ESA is consistent with CEQA state take permit requirements.

CDFW also maintains lists of SSC. An SSC designation is administrative and does not create a formal legal status. CDFW has indicated that SSC designations are intended to: (1) focus attention on at-risk animals identified by state, local, and federal entities, land managers, planners, consulting biologists, and others; (2) stimulate species research; and (3) stimulate conservation measures that would avoid a CESA listing.

California State Fish and Game Code Sections 1600—1616

Sections 1600 to 1616 of the CFGC states that it is unlawful to "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake" without first notifying CDFW of that activity. If CDFW determines and informs the Project proponent that the activity will not substantially adversely affect any existing fish or wildlife resources, the activity may be undertaken without further permitting. If CDFW determines that the proposed activity may substantially and adversely affect an existing fish or wildlife resource, a Lake or Streambed Alteration Agreement must be completed and approved by the CDFW, including reasonable measures to protect the affected resources prior to initiating the proposed activity (CFGC 1602).

State Waters (Water Code Section 13000 et seq.)

The Porter-Cologne Water Quality Control Act (Porter-Cologne) provides the State and Regional Boards with the authority to regulate discharges of waste to wetlands or other waters of the state. Section 13050(e) of the Water Code defines "waters of the state" to mean "any surface water or groundwater, including saline waters, within the boundaries of the state." Discharges of waste have been construed to include fill, any material resulting from human activity, or any other discharge that may directly or indirectly impact waters of the state. All WOTUS in California are also waters of the state. Non-federal waters, including wetlands or waters that the USACE has delineated as isolated from federally regulated rivers or streams, are regulated by the State and Regional Boards

under Porter-Cologne. State jurisdiction over waters of the state is broader in scope than federal jurisdiction of WOTUS in California.

In general, the Porter-Cologne Act requires that all parties proposing a discharge that could affect waters of the state file a report of waste discharge with the applicable regional board. The regional board may either issue waste discharge requirements (WDRs), including conditions and measures to protect waters of the state in a public hearing, or may waive the issuance of WDRs with or without additional discharge conditions. As discussed above, Section 4012 of the federal CWA requires state agencies certification that a proposed permit for the fill of a WOTUS complies with state water quality objectives. In some instances, the state definition of a water may be larger in size and/or broader in scope than the definition used for federal CWA delineation purposes. Most regional boards utilize the 401 certification process to determine whether additional WDRs may be required for impacts to waters of the state that are not addressed by a proposed federal fill permit. Discharges to waters of the state that are not federally regulated require compliance with the Porter-Cologne discharge notice and WDR issuance process. Many regional boards have adopted criteria for the issuance of WDRs that are similar to federal CWA Section 404 permit requirements, including the need to demonstrate a project has been designed to avoid, minimize, and mitigate for unavoidable effects to waters of the state and would not result in a net loss of wetlands.

The State Board is considering the adoption of a Wetland and Riparian Area Protection Policy in three phases (State Board Resolution No. 2008-0026) in three phases. Phase 1, the "Wetland Area Protection and Dredge and Fill Permitting Policy," is currently under review by the Board and includes a proposed wetland definition, delineation methods, an assessment framework for collecting and reporting aquatic resource information, and requirements applicable to discharges of dredged or fill material. A draft policy, draft regulation text, and CEQA analysis of the Phase 1 proposal remain pending.

California State Fish and Game Code Sections 3503, 3503.5, and 3513 (Raptors and Migratory Birds)

Several provisions of the CFGC protect avian species, nests, and eggs. Section 3503 provides that it is unlawful "to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." Section 3503.5 extends these statutory protections more specifically to raptors and birds of prey (Falconiformes or Strigiformes). The CDFW has not implemented ITP programs for Sections 3503 or 3503.5. Section 3513 makes it unlawful to "possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act." As discussed above, apart from certain limited exceptions, the USFWS has not implemented an incidental take program for the MBTA.

California State Fish and Game Code Sections 3511, 4700, 5050, and 5515 (Fully Protected Species)

Sections 3511, 4700, 5050, and 5515 of the CFGC prohibit the take or possession of certain birds, mammals, fish, and reptiles. These species are commonly referred to as "fully protected" under state law and state agencies and most project types are prohibited from permitting actions that would result in the incidental take of these species except under the auspices of an approved Natural Community Conservation Plan. CDFW may issue ITPs for fully protected species for qualifying projects under specific and limited circumstances. Eligible project types include the following:

- A maintenance, repair, or improvement project to the State Water Project, including existing infrastructure, undertaken by the Department of Water Resources.
- A maintenance, repair, or improvement project to critical regional or local water agency infrastructure.
- A transportation project, including any associated habitat connectivity and wildlife crossing project, undertaken by a state, regional, or local agency, that does not increase highway or street capacity for automobile or truck travel.
- A wind project and any appurtenant infrastructure improvement, and any associated electric transmission project carrying electric power from a facility that is located in the state to a point of junction with any California-based balancing authority.
- A solar photovoltaic project and any appurtenant infrastructure improvement, and any associated electric transmission project carrying electric power from a facility that is located in the state to a point of junction with any California-based balancing authority.

California Native Plant Protection Act of 1977; California Fish and Game Code Section 1900 et seq.

The Native Plant Protection Act of 1977 (CFGC Section 1900 et seq.) authorizes CDFW to designate rare and endangered native plants and provides specific protection measures for state-listed species.

California Code of Regulations, Title 14, Section 15380

CCR, Title 14, Section 15380(b) provides that species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to be "endangered" or "rare" within the meaning of the statute. To be "endangered" means that the species survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors. A species is "rare" when either: (1) although not presently threatened with extinction, the species exists in such small numbers throughout all or a significant portion of its range that it may become endangered if the environment worsens; or (2) the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and not be considered "threatened" within the meaning of the ESA.

Natural Community Conservation Planning Act (Fish and Game Code Sections 2800 et seq.)

In 1991 California enacted the Natural Community Conservation Planning Act (CFGC Section 2800 et seq.) to authorize the creation and implementation of natural community conservation plans (NCCPs) to conserve natural communities at the ecosystem level while accommodating compatible land use. The act was revised in 2003 and has been subsequently amended. An NCCP is intended to function much like a federal HCP and provide for the long-term conservation of wildlife and plant communities in regional locations in a manner that also allows for economic development and growth. Section 2805(e) allows the incidental take of fully protected species that are covered under an approved NCCP.

Regional

Kern County Draft Valley Floor Habitat Conservation Plan

The project site is within the area of the pending Draft Kern County Valley Floor Habitat Conservation Plan (KCVFHCP). The Draft Kern County Valley Floor Habitat Conservation Plan area occurs in the western portion of Kern County except for areas at the base of the Tehachapi Mountains. The area is limited to the southern San Joaquin Valley floor of Kern County including the project site.

The KCVFHCP is a pending Habitat Conservation Plan (HCP) pursuant to the ESA and if adopted as proposed would cover over 3,110 square miles in Kern County. The purpose of the plan is to create a comprehensive strategy to conserve and protect the San Joaquin kit fox, blunt-nosed leopard lizard, and 23 other sensitive species. In addition, the HCP provides a streamlined program for complying with the requirements of the CESA and ESA. The HCP has not yet been approved by the USFWS, CDFW, or the Kern County Board of Supervisors.

If the HCP is completed and adopted, it would enable the use of incidental take permits for 13 covered species that would be issued to participating local jurisdictions and state agencies. This incidental take authorization cannot be implemented, however, until the local governments complete the application for incidental take permits and receive approval from state and federal wildlife agencies.

Local

Kern County General Plan

The Project site is located within the unincorporated area of Kern County and, therefore, is subject to applicable policies and measures of the Kern County General Plan (KCGP). The Land Use, Conservation, and Open Space Element and the Energy Element of the KCGP include goals, policies, and implementation measures related to biological resources that apply to the proposed Project, as described below.

Chapter 1. Land Use, Conservation, and Open Space Element

1.3. Physical and Environmental Constraints

Policies

Policy 9. Construction of structures that impede water flow in a primary floodplain will be discouraged.

Policy 11. Protect and maintain watershed integrity within Kern County.

Implementation Measures

Implementation Measure I. Designated flood channels and water courses, such as creeks, gullies, and riverbeds, will be preserved as resource management areas or in the case of urban areas, as linear parks whenever practical.

1.9. Resource

Goals

Goal 6. Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.

Policies

Policy 11. Minimize the alteration of natural drainage areas. Require development plans to include necessary mitigation to stabilize runoff and silt deposition through utilization of grading and flood protection ordinances.

Policy 20. Areas along rivers and streams will be conserved where feasible to enhance drainage, flood control, recreational, and other beneficial uses while acknowledging existing land use patterns.

1.10. General Provisions

1.10.5. Threatened and Endangered Species

Goals

Goal 1. Ensure that the County can accommodate anticipated future growth and development while a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.

Policies

Policy 27. Threatened or endangered plant and wildlife species should be protected in accordance with State and federal laws.

Policy 28. County should work closely with State and federal agencies to assure that discretionary projects avoid or minimize impacts to fish, wildlife, and botanical resources.

Policy 29. The County will seek cooperative efforts with local, State, and federal agencies to protect listed threatened and endangered plant and wildlife species through the use of conservation plans and other methods promoting management and conservation of habitat lands.

Policy 31. Under the provisions of CEQA, the County, as lead agency, will solicit comments from the California Department of Fish and Game and the USFWS when an environmental document (Negative Declaration, Mitigated Negative Declaration, or EIR) is prepared.

Policy 32. Riparian areas will be managed in accordance with United States Army Corps of Engineers, and the California Department of Fish and Game rules and regulations to enhance the drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.

Implementation Measures

Implementation Measure Q. Discretionary projects shall consider effects to biological resources as required by CEQA.

Implementation Measure R. Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary project subject to CEQA.

Implementation Measure S. Pursue the development and implementation of conservation programs with state and federal wildlife agencies for property owners desiring streamlined endangered species mitigation programs.

1.10.6. Surface Water and Groundwater

Policies

Policy 44. Discretionary projects shall analyze watershed impacts and mitigate for construction-related and urban pollutants, as well as alterations of flow patterns and introduction of impervious surfaces as required by CEQA, to prevent the degradation of the watershed to the extent practical.

1.10.7. Light and Glare

Policies

Policy 47. Ensure that light and glare from discretionary new development projects are minimized in rural as well as urban areas.

Policy 48. Encourage the use of low-glare lighting to minimize nighttime glare effects on neighboring properties.

Implementation Measures

Implementation Measure AA. The County shall utilize CEQA Guidelines and the provisions of the Zoning Ordinance to minimize the impacts of light and glare on adjacent properties and in rural undeveloped areas.

1.10.10 Oak Tree Conservation

Policies

Policy 65. Oak woodlands and large oak trees shall be protected where possible and incorporated into project developments.

Policy 66. Promote the conservation of oak tree woodlands for their environmental value and scenic beauty.

Implementation Measures

Implementation Measure KK. The following applies to discretionary development projects (General Plan Amendment, zone change, conditional use permit, tract maps, parcel maps, precise development plan) that contains oak woodlands, which are defined as development parcels having canopy cover by oak trees of at least 10 percent, as determined from base line aerial photography or by site survey performed by a licensed or certified arborist or botanist. If this study is used in an EIR, then a Registered Professional Forester shall perform the necessary analysis.

a. Development parcels containing oak woodlands are subject to a minimum canopy coverage retention standard of 30 percent. The consultant shall include recommendations regarding thinning and diseased tree removal in conjunction with the discretionary project.

b. Use of aerial photography and a dot grid system shall be considered adequate in determining the required canopy coverage standard.

c. Adjustments below 30 percent minimum canopy standard may be made based on a report to assess the management of oak woodlands.

d. Discretionary development, within areas designated as meeting the minimum canopy standard, shall avoid the area beneath and within the trees unaltered dripline unless approved by a licensed or certified arborist or botanist.

Implementation Measure LL. The following applies to development of parcels having oak tree canopy cover of less than 10 percent but containing individual oak trees equal to or greater than a 12-inch diameter trunk at 4.5 feet breast height.

a. Such trees shall be identified on plot plans.

b. Discretionary development shall avoid the area beneath and within the trees unaltered drip line unless approved by a licensed or certified arborist or botanist.

c. Specified tree removal related to the discretionary action may be granted by the decision-making body upon showing that a hardship exists based on substantial evidence in the record.

Chapter 5. Energy Element

5.2 Importance of Energy to Kern County

Policies

Policy 8. The County should work closely with local, State, and federal agencies to assure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts to fish, wildlife, and botanical resources, wherever practical.

Policy 9. The County should develop and implement measures which result in long-term compensation for wildlife habitat, which is unavoidably damaged by energy exploration and development activities.

5.4.5 Solar Energy Development

Policies

Policy 1. The County shall encourage domestic and commercial solar energy used to conserve fossil fuel and improve air quality.

Policy 2. The County should attempt to identify and remove disincentives to domestic and commercial solar energy development.

Policy 3. The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

Policy 4. The County should encourage solar development in the desert and valley regions previously disturbed, and discourage development of energy projects on undisturbed land supporting State or federally protected plant and wildlife species.

Buttonwillow Community Development Specific Plan

Site 1 of the proposed Project is partially located within the area that is subject to the Buttonwillow Community Development Plan and, therefore, is subject to applicable policies and measures of the Buttonwillow Community Development Specific Plan. The Conservation Element includes recommendations and implementation measures related to biological resources within the plan area. The biological resources-related policies and measures in the Buttonwillow Community Development Plan that are applicable to the proposed Project are stated below.

Conservation

Conservation – Development – Utilization of Natural Resources

2. Surface Waters

Recommendation:

- That the quality of surface waters be preserved.
- No industrial use that could cause contamination of surface waters through waste drainage shall be permitted.

Implementation:

- Continuing review of all proposed industrial uses by appropriate departments, agencies and districts prior to granting any approvals.

4. Vegetation and Soils

Soils

Recommendation:

- The inherent capabilities of all soil groups shall be prudently utilized to serve both short and long-term interests.

6. Fish and Wildlife

Wildlife

Recommendation:

Blunt-Nosed Leopard Lizard:

- The extent and status of existing populations should be determined.
- Wildlife refuges should be established.

Giant Garter Snake:

- Managers of wildlife areas and private duck club owners should retain habitats to protect this snake.
- The current status of populations throughout the range should be determined.

San Joaquin Kit Fox:

- A San Joaquin Kit Fox ecological reserve should be established, possibly in the Elk Hills Naval Petroleum Reserve.

Implementation:

- Encourage programs to locate and determine populations of rare and endangered species.
- Encourage the establishment of wildlife refuges and habitats for rare and endangered species.

Standards for Protection of Watershed Areas

Recommendation:

- Watersheds affecting the area of Buttonwillow should be protected from adverse development that might reduce the effectiveness of water retention and release.

Kern County Zoning Ordinance

Chapter 19.81, Dark Skies Ordinance (Outdoor Lighting)

In November 2011, Kern County approved a Dark Skies Ordinance. The purpose of this ordinance is to maintain the existing character of Kern County by requiring a minimal approach to outdoor lighting, recognizing that excessive illumination can create a glow that may obscure the night sky, and that excessive illumination or glare may constitute a nuisance. The ordinance provides requirements for outdoor lighting within specified unincorporated areas of Kern County in order to accomplish the following objectives:

Objective 1: Encourage a safe, secure, and less light-oriented nighttime environment for residents, businesses and visitors.

Objective 2: Promote a reduction in unnecessary light intensity and glare, and to reduce light spillover onto adjacent properties.

Objective 3: Protect the ability to view the night sky by restricting unnecessary upward projections of light.

Objective 4: Promote a reduction in the generation of greenhouse gases by reducing wasted electricity that can result from excessive or unwanted outdoor lighting.

Kern County Development Standards

The Kern County Development Standards have specific regulations pertaining to lighting standards including the requirement that lighting must be designed so that light is reflected away from surrounding land uses so as not to affect or interfere with vehicular traffic, pedestrians, or adjacent properties.

4.4.4 Impacts and Mitigation Measures

This section evaluates the impacts to biological resources that may occur during construction, operation, and decommissioning of the proposed Project. It describes the sensitive biological resources on, and adjacent to, the Project site that may be affected and identifies the thresholds used

to determine whether an impact would be significant. Measures to mitigate significant impacts are outlined in each impact discussion, where applicable.

Methodology

This section addresses the potential direct and/or indirect impacts to biological resources that would result from implementation of the proposed Project and provides an analysis of significance for each impact. Biological resources evaluated include sensitive habitats, special-status plant and animal species, and potential for wildlife movement corridors. The potential for special-status species to occur on the Project site is based on the results of database research, biological assessments, surveys conducted of the Project site and vicinity, presence of suitable habitat, and the proximity of the Project site to previously recorded occurrences in the CNDDB, CDFW, and USFWS data. Other sources of information sources included aerial photographs, topographic maps, soil survey maps, geological maps, climatic data, previous biological studies, and proposed Project plans.

Reconnaissance and focused biological surveys were conducted from 2022 through 2024 and included special-status plant surveys, burrow mapping, a San Joaquin antelope squirrel focused survey, Swainson's hawk habitat assessment, vernal pool fairy shrimp habitat assessment, small mammal trapping, and camera studies for Buena Vista Lake ornate shrew. Burrow mapping included a habitat assessment for blunt-nosed leopard lizard, burrowing owl, San Joaquin kit fox, and American badger. The specific research methodology and survey protocol data is provided in Appendix D.2.

An aquatic resources jurisdictional delineation was conducted in 2023 and 2024. Vegetation mapping was conducted concurrently with the aquatic resources jurisdictional delineation. The specific research methodology and survey protocol data is provided in Appendix D.4.

Reconnaissance and focused biological surveys were conducted in 2024 for the Midway Substation site, which included vegetation mapping, aquatic resources jurisdictional delineation, and focused survey for special status plants. The specific research methodology and survey protocol data is provided in Appendix D.5. The impacts to vegetation communities for the species with potential to occur at the Midway Substation site is derived from Table 2, 3, and 4, and Figure 6 provided in Appendix D.5.

The following section describes potential impacts related to biological resources that could occur as a result of the proposed Project, and proposed mitigation measures. Impacts include both direct and indirect impacts. The CCR, Title 14, Section 15358 defines: "direct impacts" as those impacts that result from a project and occur at the same time and place; and "indirect impacts" as impacts from a project which occur later in time or farther removed in distance while still reasonably foreseeable and related to the project.

The analysis involves potential impacts from all phases of the proposed Project. Construction impacts include both direct and indirect impacts to biological resources. While direct impacts associated with construction of the project are expected to occur only through the duration of

construction activities, indirect construction impacts (for example, the spread of non-native and invasive weeds) could potentially remain an ongoing source of disturbance. Operational impacts also include both direct and indirect impacts to biological resources. Ongoing operations and maintenance impacts would occur during routine inspection and maintenance of the project facilities (for example, routine inspections and emergency repairs). Operational impacts include disturbance to plants and wildlife species that occur within the facility perimeter and in adjacent habitat. Finally, given the similarity between the activities involved with construction and decommissioning activities, impacts resulting from decommissioning activities are anticipated to be the same, or similar to, construction-related impacts.

Project impacts are considered permanent if they would involve the conversion of land to a new use from activities such as the construction of new roads or operation and maintenance facilities. Temporary project impacts are those effects that do not result in permanent land use conversion. Effects to vegetation communities or other ground disturbance activities restricted solely to the construction phase (for example, grading roads and clearing vegetation within staging areas), are considered are considered "temporary," provided that native vegetation is not replaced with infrastructure or the area is not maintained free of vegetation, and that restoration is completed.

Construction and operation of the proposed Project could impact plants and wildlife in a variety of ways. Construction activities could result in both direct and indirect impacts to species. Direct impacts from construction activities associated with the installation of facilities would include temporary disturbance and/or loss of native vegetation communities utilized as habitat for both common and special status wildlife and plants. Other impacts could include fugitive dust, lighting that may alter species behavior, and increased noise levels due to heavy equipment operations during construction. Increased interaction with humans, loss of burrows and dens during well pad preparation, trenching activities associated with flow/pipelines and steam lines, or entrapment during other activities associated with construction, may cause increased harassment, injury, and/or mortality of a species.

Direct impacts from proposed Project construction and/or decommissioning activities could include:

- The permanent removal and/or temporary disturbance of native vegetation communities utilized as habitat for both common and special status wildlife and plants, fugitive dust, and increased noise levels due to heavy equipment operations occurring in these areas.
- Excessive dust from construction activities can decrease the vigor and productivity of vegetation communities through effects on light penetration, photosynthesis, respiration, transpiration, increased penetration of phytotoxic gaseous pollutants, and increased incidence of pests and diseases.
- Noise and vibration associated with project activities may affect behavior of wildlife in several ways. Excessive noise may affect species behavior by causing nest or burrow abandonment and interfering or altering normal behaviors.

- Lighting that may affect behavioral activities, physiology, population ecology, and ecosystems of both diurnal and nocturnal wildlife.
- Increased human activity which adversely affects behavioral activities and/or the physiology of wildlife. Increased human activity could alter species behavior causing them to abandon nests or den sites. Abandonment (even temporary) of active nests or dens increases the risk to eggs, nestlings, fledglings, and other dependent young. Flushing animals from nests, dens, and other refuges also increases their risk of injury or mortality from collisions with construction equipment and other vehicles, as well as predation.
- An increase in non-native and invasive species could potentially increase and remain an ongoing source of disturbance. Impacts could include the loss of habitat due to the establishment of non-native and invasive weeds.
- An increase in mortality, injury, or displacement of special status plants or wildlife, loss or degradation of native habitat, or interference with wildlife movement or migration may also occur.

Indirect impacts to habitat from construction and/or decommissioning activities could include alterations to existing topographical and hydrological conditions, increased erosion and sediment transport, and the establishment of non-native and invasive weeds.

Operational impacts include disturbance due to increased human presence, risk of injury or mortality from maintenance vehicles on access roads, and further opportunities for the introduction and spread of non-native and invasive weeds. More specifically, indirect impacts from proposed Project construction activities could include the following:

- Removal of vegetation which causes permanent habitat loss. Loss or degradation of habitat including damage to shrubs and plants could alter access to a variety of essential resources, including shade and food sources.
- Alterations to existing topographical and hydrological conditions, increased erosion and sediment transport, and the establishment of non-native and invasive weeds.
- Activities which disrupt raptors occupation and/or use of active nests and/or primary foraging areas.
- Colonization of non-native weeds that cause a gradual decrease in biodiversity from extirpation of native plant populations.

Operational impacts could also include mortality, injury, or displacement of special status plants or wildlife; loss or degradation of native habitat; interference with wildlife movement or migration; disturbance to plants, animals and habitat from noise, light, or dust; and disturbance due to increased human presence; risk of injury or mortality from maintenance vehicles on access roads; and further opportunities for the introduction and spread of non-native and invasive weeds.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in the CEQA Guidelines Appendix G, to determine if a project could potentially have a significant adverse effect on biological resources.

A project would have a significant adverse effect on biological resources if it:

- Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or the USFWS;
- Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or the USFWS;
- Has a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, or coastal wetlands) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan.

Project Impacts

Impact 4.4-1: Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations or by CDFW or USFWS?

The proposed Project has the potential to impact special-status plants and wildlife through the loss of habitat, as well as direct and indirect impacts on species (for example, mortality of individuals, interference with reproductive success, introduction of invasive species, and habitat degradation). The proposed Project's potential impacts to special status plants and wildlife from construction, operation and maintenance, and decommissioning, are discussed below.

Special-Status Plants

Three special-status plants were observed in the BSA during botanical surveys conducted in 2024: heartscale, lesser saltscale, and alkali-sink goldfields. Based on the results of the literature review and database searches, one special-status species, Kern mallow, has a high potential to occur in the BSA.

Heartscale

Approximately 22,642 total heartscale individuals were observed during 2024 botanical surveys (20,000 on Site 1; 10 on Site 2; 1 on Site 4; and 2,631 on the gen-tie line route). Heartscale occurs in chenopod scrub, meadows and seeps, and valley and foothill grassland.

Lesser Saltscale

Approximately 3,817 lesser saltscale individuals were observed during 2024 botanical surveys, all on Site 8. Lesser saltscale occurs in chenopod scrub, playas, and valley and foothill grassland.

Alkali-Sink Goldfields

Approximately 50 alkali-sink goldfields were observed during 2024 botanical surveys, all on Site 2. Alkali-sink goldfields occur in vernal pools and alkali sinks.

Kern Mallow

Kern mallow was not observed during 2024 botanical surveys but has a high potential to occur. Kern mallow occurs in chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland.

Not all sites within the BSA contain suitable habitat resources to support the above species. **Table 4.4-8:** S*pecial-Status Plant Species Expected and Potential Impacts*, identifies the sites and gen-tie line area in which the species were identified and, consequently, could experience impacts.

Table 4.4-8: Special-Status Plant Species Expected and Potential Impacts

Special Status Plant Species	Site 1	Site 2	Site 3	Site 4	Site 8	Gen-Tie Line
Heartscale	X	X	x	X	x	X
Lesser saltscale	x	x	x	—	X	x
Alkali-sink goldfields	—	X	x	—	x	—
Kern mallow	x	x	x	—	x	x

Source: Dudek 2025a (Appendix D.2)

Key: X = expected impact; x = potential impact

New land disturbance in locations occupied by special status plants could result in both direct and indirect impacts to such species. Direct impacts as a result of construction activities associated with the proposed Project could include the permanent removal and temporary disturbance of native vegetation communities. Direct impacts from construction activities could include the destruction or injury of individual plants, if present. During the growth and blooming period, the spread of dust and/or non-native or invasive species during construction could cause an indirect impact on these species. Competition with invasive plants would have an indirect impact on these species. Indirect construction impacts to habitat could include alterations to existing topographical and hydrological conditions, increased erosion and sediment transport, and the establishment of non-native and invasive weeds.

These direct and indirect impacts to special status plants are potentially significant, but would be reduced through implementation of Mitigation Measure MM 4.4-4, which requires a qualified biologist, prior to any ground-disturbing activities, to conduct special status plant surveys. Potential impacts would be further reduced through implementation of Mitigation Measures MM 4.4-1, MM 4.4-2, and MM 4.4-3, which require worker training, biological monitoring, and general avoidance and protection measures. Additional Mitigation Measures include MM 4.4-6 (BMPs to Avoid Indirect Impacts to Special-Status Plants), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), and MM 4.4-21 (Sensitive Vegetation Avoidance and Mitigation). Implementation of these mitigation measures would reduce the potential construction-related impacts to special status plants to less than significant.

Direct impacts as a result of operation and maintenance activities associated with the proposed Project could include the permanent removal and temporary disturbance of native vegetation communities. Direct impacts from operation and maintenance activities could include the destruction or injury of individual plants, if present. Additionally, indirect impacts could include degradation of adjacent habitat if the site is colonized by invasive species or generates excessive dust due to a lack of vegetation. Indirect impacts could also result from the removal of special status plants during vegetation management activities. These direct and indirect operational impacts to special status plants are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction and decommissioning activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to special status plants to less than significant.

Direct and indirect impacts to special status plants during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, native vegetation communities) present on, and/or adjacent to, the Project site at the time of decommissioning. Additional indirect impacts could include degradation of adjacent habitat if the site is colonized by invasive species or generates excessive dust due to a lack of vegetation. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to special status plants. Because decommissioning activities and associated impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during proposed Project decommissioning. Therefore, impacts to special status plants would be reduced to less than significant during decommissioning of the proposed Project.

Special-Status Wildlife

The proposed Project would require ground disturbance and construction activities during the construction, operation and maintenance, and/or decommissioning phases, which could result in impacts to special status wildlife species if they are present when these activities occur.

As shown in **Table 4.4-9:** S*pecial-Status Wildlife Species Potential Impacts*, a total of 18 sensitive wildlife species have the potential to occur within the BSA and, consequently, have the potential to experience impacts from the proposed Project, as described below.

Table 4.4-9: Special-Status Wildlife Species Potential Impacts

Special-Status Wildlife Species	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 8	Gen-Tie Line
Invertebrates								
Crotch's bumble bee	x	x	x	—	x	x	x	x
Vernal pool fairy shrimp	x	x	x	x	—	—	x	x
Amphibians								
Western spadefoot	x	x	x	x	x	x	x	x
Reptiles								
Bakersfield legless lizard	x	x	x	—	x	x	x	x
California glossy snake	x	x	x	—	x	x	x	x
Blunt-nosed leopard lizard	x	--	x	—	x	x	x	x
Coast horned lizard	—	—	—	—	—	—	x	x
San Joaquin coachwhip	x	x	x	—	x	x	x	x
Birds[1]								
Tricolored blackbird	x	x	—	x	x	x	x	—
Burrowing owl	x	x	x	x	x	x	x	x
Swainson's hawk (nesting)	x	x	—	x	x	x	x	x
Loggerhead shrike (nesting)	x	—	—	—	—	—	x	x
Mammals								
Giant kangaroo rat	x	—	x	—	x	x	x	x
Tipton kangaroo rat	x	—	x	—	x	x	x	x
San Joaquin antelope squirrel	x	x	x	—	x	x	x	x
American badger	x	—	x	—	x	x	x	x
San Joaquin kit fox	x	x	x	x	x	x	x	x

Source: Dudek 2025a (Appendix D.2)

Notes:

[1] Potential impacts to bird species nesting habitat (not foraging habitat) were considered.

Key: x = potential impact

Invertebrates

Crotch's Bumble Bee

Crotch's bumble bee was incidentally observed flying/foraging during 2024 botanical surveys and has a moderate potential to occur in portions of Sites 1, 2, 3, 5, 6, and 8, and in portions of the gen-tie line route. This species occurs in open grassland and scrub communities supporting suitable floral resources. The BSA supports floral resources for feeding and other habitat for nesting. Based on habitat modeling, the proposed Project would result in the permanent loss of approximately 493 acres of moderately suitable Crotch's bumble bee habitat on Sites 1, 2, 3, 5, 6, and 8, and the gen-tie line route (Appendix D.2). Based on habitat modeling, the proposed Project would result in the permanent loss of 493 acres of suitable habitat.

Crotch's bumble bee forage on suitable floral resources in open grassland and scrub communities, and, as such, direct effects on foraging/flying individuals during the construction phase may result from vehicle/equipment strikes and materials placement, earthwork, vegetation removal, or vehicle passage, equipment laydown, trenching, ground disturbance (for example, disking, grading, and placement of spoils and/or fill materials), pile driving, and laying of foundations. In addition, Crotch's bumble bee nest primarily underground in rodent burrows. If Crotch's bumble bee individuals are using burrows on the Project site for nesting, potentially significant direct impacts could result from ground-disturbing activities, which could lead to death or injury of adults, eggs, and larva, burrow collapse, nest abandonment, and reduced nest success. Indirect impacts on Crotch's bumble bee could occur from construction-related noise and ground vibration, vehicle emissions, and dust, and habitat degradation from introduction of non-native plants or other factors. Additionally, because the species is considered a generalist forager and could forage anywhere within the BSA where suitable floral resources are present, indirect impacts could result from the removal of vegetation during construction.

These direct and indirect impacts to Crotch's bumble bee are potentially significant, but would be reduced through implementation of Mitigation Measure MM 4.4-8, which requires a qualified biologist, prior to any ground-disturbing activities, to conduct a pre-construction survey for Crotch's bumble bee. Potential impacts would be further reduced through implementation of Mitigation Measures MM 4.4-1, MM 4.4-2, and MM 4.4-3, which requires worker training, biological monitoring, and general avoidance and protection measures. Additional Mitigation Measures include MM 4.4-4 (Special-Status Plant Surveys), MM 4.4-5 (Invasive Species Control), MM 4.4-6 (BMPs to Avoid Indirect Impacts to Special-Status Plants), MM 4.4-7 (Wildlife Clearance Surveys), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), and MM 4.4-21 (Sensitive Vegetation Avoidance and Mitigation). Implementation of these mitigation measures would reduce the potential construction-related impacts to Crotch's bumble bee to less than significant.

Because Project construction would permanently remove suitable habitat for Crotch's bumble bee on Sites 1, 2, 3, 5, 6, and 8, and the gen-tie line route, it is unlikely that the Crotch's bumble bee would be flying/foraging during the operation and maintenance phase of the proposed Project. However, if individuals are using burrows on the site for nesting, significant direct impacts could occur from vehicle use, potentially causing the death or injury of adults, eggs, and larvae, as well as burrow collapse, nest abandonment, and reduced nesting success. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, and dust, which could disrupt the species. Indirect impacts could also result from the removal of vegetation during vegetation management activities. These direct and indirect operational impacts to Crotch's bumble bee are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to Crotch's bumble bee to less than significant.

Direct and indirect impacts to Crotch's bumble bee during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, suitable vegetation/burrows) present on, and/or adjacent to, the Project site at the time of

decommissioning. Additional indirect impacts could include degradation of adjacent habitat if the site is colonized by invasive species or generates excessive dust due to a lack of vegetation. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to Crotch's bumble bee. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during proposed Project decommissioning. Therefore, impacts to Crotch's bumble bee would be reduced to less than significant during decommissioning of the proposed Project.

Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp were not observed during reconnaissance surveys but has moderate to high potential to occur in portions of Sites 1, 2, 3, 5, and 8 and portions of the gen-tie line route. They typically occur in vernal pools or seasonally ponded areas within swales and ephemeral freshwater habitats. The BSA contains areas of ephemeral ponded areas suitable for this species. An evaluation of suitable habitat was conducted within the BSA in 2024 (Appendix D.2). Based on habitat modeling, the proposed Project would result in the permanent loss of 443 acres of moderate- to high-suitability vernal pool fairy shrimp habitat on Sites 1, 2, 3, 5, and 8 and portions of the gen-tie line route (Appendix D.2).

Direct impacts to occupied habitat may occur during grading or excavation for construction. Proposed Project impacts would be considered significant if vernal pool habitat within the Project site was determined to be, or assumed to be, occupied by vernal pool fairy shrimp. Additional direct impacts on vernal pool fairy shrimp could include increased potential for mortality due to an increase in vehicular traffic through the Project site. Indirect impacts including (1) reduction in water quality and altered hydrology caused by storm water runoff, erosion, and siltation, (2) litter and dumping, (3) and/or introduction of invasive plant species, could result in habitat degradation leading to lower reproductive success of vernal pool fairy shrimp outside the BSA, and a decline in numbers or eventual elimination of these species from the affected habitat. Additional indirect impacts on vernal pool fairy shrimp could include noise and vibration disturbance, and exposure to herbicides, pesticides, and other toxins. These direct and indirect construction impacts to vernal pool fairy shrimp are potentially significant, but would be reduced through implementation of Mitigation Measure MM 4.4-9, which requires protocol-level surveys for federally listed large branchiopods, and specific avoidance and mitigation measures for branchiopods. Potential impacts to vernal pool fairy shrimp would be further reduced through implementation of Mitigation Measures MM 4.4-1 (On-Site Biological Monitoring), MM 4.4-2 (WEAT), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-5 (Invasive Species Control), MM 4.4-7 (Wildlife Clearance Surveys), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), MM 4.4-20 (Lighting Design), MM 4.4-22 (Aquatic Resources Delineation Report) and MM 4.4-23 (Aquatic Resources Mitigation). Implementation of these mitigation measures would reduce the potential construction-related impacts to vernal pool fairy shrimp to less than significant.

Because Project construction would permanently remove suitable habitat for vernal pool fairy shrimp on Sites 1, 2, 3, 5, and 8, and the gen-tie line route, and that vernal pool fairy shrimp is restricted to areas containing habitat, it is unlikely that this species would occur within these areas during the operation and maintenance of the proposed Project. However, if individuals are using suitable habitat (for example, vernal pools) on the site during the operations and maintenance phase of the project, significant direct impacts could occur from vehicle use, potentially causing the death or injury of adults. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, dust, and reduction in water quality, which could disrupt the species. These direct and indirect operational impacts to vernal pool fairy shrimp are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to vernal pool fairy shrimp to less than significant.

Direct and indirect impacts to vernal pool fairy shrimp during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, vernal pools, swales, and ephemeral freshwater habitats) present on, and/or adjacent to, the Project site at the time of decommissioning. Additional indirect impacts involving habitat degradation could result from: a reduction in water quality and altered hydrology caused by storm water runoff, erosion, and siltation; litter and dumping; and the introduction of invasive plant species. Additional indirect impacts on vernal pool fairy shrimp could include noise and vibration disturbance, and exposure to herbicides, pesticides, and other toxins. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to vernal pool fairy shrimp. Because impacts during the decommissioning of the proposed Project are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during decommissioning of the proposed Project. Therefore, impacts to vernal pool fairy shrimp would be reduced to less than significant during the decommissioning of the proposed Project.

Amphibians

Western Spadefoot

Western spadefoot was incidentally observed within Site 8 during small mammal trapping, and the CNDDB describes three recent occurrences of the species between Project parcels and gen-tie routes, including within and outside of the Buttonwillow Ecological Reserve. It primarily breeds in ponded areas that persist at least three weeks in grasslands, chaparral, coastal scrub, valley-foothill woodlands, pastures, and other agriculture. Suitable habitat is present within the BSA, and the species has low to moderate potential to breed during wet years in small suitable areas of the BSA. Based on habitat modeling and suitable habitat identified onsite (that is, vernal and temporary pools identified onsite for vernal pool fairy shrimp which also is suitable for western spadefoot), the proposed Project would result in the permanent loss of 443 acres of moderate- to high- western spadefoot habitat on Sites 1, 2, 3, 5, and 8 and portions of the gen-tie line route (Appendix D.2).

Direct impacts to occupied habitat may occur during grading or excavation necessary for construction. Western spadefoots are mostly terrestrial, spending 8 to 10 months underground in burrows, emerging after rain to breed (Dudek 2025a). Breeding occurs from January to May in vernal pools formed by winter or spring rains, and males' calls attract other individuals. As such, Project impacts would be considered significant if vernal pool habitat within the Project site is determined to be, or assumed to be, occupied by western spadefoot. If present on the Project site at the time of construction activities, it is possible that the species could be injured or crushed by onsite equipment or vehicles. If any individuals are in burrows and the burrows go undetected, individuals could be crushed during construction activities. Indirect effects, including reduction in water quality and altered hydrology caused by storm water runoff, erosion, and siltation, litter and dumping, and/or introduction of invasive plant species, could result in habitat degradation leading to lower reproductive success of western spadefoot outside the BSA and a decline in numbers or eventual elimination of these species from the affected habitat. Additional indirect impacts to western spadefoot could include noise and vibration disturbance causing toads to break dormancy, and eventual mortality from exposure to herbicides, pesticides, and other toxins. These direct and indirect construction impacts to western spadefoot are potentially significant, but would be reduced through implementation of Mitigation Measure MM 4.4-10, which requires pre-construction surveys for potential breeding habitat for western spadefoot. Potential impacts to western spadefoot would be further reduced through implementation of Mitigation Measures MM 4.4-1 (On-Site Biological Monitoring), MM 4.4-2 (WEAT), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-5 (Invasive Species Control), MM 4.4-7 (Wildlife Clearance Surveys), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), MM 4.4-20 (Lighting Design), MM 4.4-21 (Sensitive Vegetation Avoidance and Mitigation), MM 4.4-22 (Aquatic Resources Delineation Report), and MM 4.4-23 (Aquatic Resources Mitigation).

Project construction on Sites 1, 2, 3, 5, and 8, and the gen-tie line route, would permanently remove suitable habitat for the western spadefoot. This permanent removal of suitable habitat constitutes a potential adverse effect on the species, which relies on these specific locations for survival and reproduction. However, because the western spadefoot is a species restricted to areas containing suitable habitat, the proposed Project's operation and maintenance activities are unlikely to directly impact this species in areas that are unsuitable or where suitable habitat has already been permanently removed. However, if individuals are using burrows onsite, significant direct impacts could occur from vehicle use, potentially causing the death or injury of adults, as well as burrow collapse. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, dust, and reduction in water quality, which could disrupt the species. These direct and indirect operational impacts to western spadefoot are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to western spadefoot to less than significant.

Direct and indirect impacts to western spadefoot during proposed Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, swales and ephemeral freshwater habitats) present on, and/or adjacent to, the Project site at the time of decommissioning. Additional indirect impacts involving habitat degradation could result from a reduction in water quality and altered hydrology caused by storm water runoff,

erosion, and siltation; litter and dumping; and/or introduction of invasive plant species. Additional indirect impacts to western spadefoot could include noise and vibration disturbance causing individuals to break dormancy, and exposure to herbicides, pesticides, and other toxins. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to western spadefoot. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during decommissioning. Therefore, impacts to western spadefoot would be reduced to less than significant during decommissioning of the proposed Project.

Reptiles

Bakersfield Legless Lizard

Bakersfield legless lizard was not observed during reconnaissance surveys. The BSA exhibits loose soils for burrowing and other refugia (for example, leaf litter, rocks, and logs). This species has a low to moderate potential to occur in suitable habitat on Sites 1, 2, 3, 5, 6, and 8, and in portions of the gen-tie line route (Appendix D.2). Based on existing vegetation mapping, the proposed Project would result in the permanent loss of 499 acres of suitable scrub habitat on Sites 1, 2, 3, 5, 6, and 8, and the gen-tie route (Appendix D.2).

If present on the Project site at the time of construction activities, it is possible that the species could be injured or crushed by onsite equipment or vehicles. If any individuals are in burrows and the burrows go undetected, individuals could be crushed during construction activities. Indirect impacts on Bakersfield legless lizard could occur from construction-related noise and ground vibration, vehicle emissions, dust, and habitat degradation from introduction of non-native plants or other factors. These direct and indirect operational impacts to Bakersfield legless lizard are potentially significant, but would be reduced through implementation Mitigation Measures MM 4.4-1 and MM 4.4-7, which require an on-site biological monitor during construction activities and pre-construction wildlife clearance surveys. Potential impacts to Bakersfield legless lizard would be further reduced through implementation of Mitigation Measures MM 4.4-2 (WEAT), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-5 (Invasive Species Control), MM 4.4-17 (Fence Design and Site Permeability), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), and MM 4.4-20 (Lighting Design). Additionally, implementation of MM 4.1-4, as described in Section 4.1, *Aesthetics and Visual Resources*, would reduce the disturbance to native vegetation. Implementation of these mitigation measures would reduce the potential construction-related impacts to Bakersfield legless lizard to less than significant.

Because Project construction would permanently remove suitable habitat for Bakersfield legless lizard on Sites 1, 2, 3, 5, 6, and 8, and the gen-tie route, it is unlikely that this species would occur within these areas during the operation and maintenance of the proposed Project. However, if individuals are using burrows and other refugia on the site for nesting, significant direct impacts could occur from vehicle use, potentially causing the death or injury of adults, eggs, and larvae, as well as burrow collapse, nest abandonment, and reduced nesting success. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, and dust, which could

disrupt the species. Indirect impacts could also result from the removal of vegetation during vegetation management activities. These direct and indirect operational impacts to Bakersfield legless lizard are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation- and maintenance-related impacts to Bakersfield legless lizard to less than significant.

Direct and indirect impacts to Bakersfield legless lizard during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, burrows and other refugia) present on, or adjacent to, the Project site at the time of decommissioning. Additional indirect impacts could result from construction-related noise and ground vibration, vehicle emissions, dust, and habitat degradation from introduction of non-native plants or other factors. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to Bakersfield legless lizard. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during decommissioning. Therefore, impacts to Bakersfield legless lizard would be reduced to less than significant during decommissioning of the proposed Project.

Blunt-Nosed Leopard Lizard

The blunt-nosed leopard lizard was not observed during the field reconnaissance or incidentally during the jurisdictional delineation, vegetation mapping, or botanical surveys conducted from 2022 through 2024, during the active period of the leopard lizard, or during burrow mapping/San Joaquin Antelope squirrel focused surveys conducted in 2024 (Appendix D.2). However, based on the habitat assessment and CNDDB database records, blunt-nosed leopard lizard has a moderate to high potential to occupy all areas of the BSA that contain natural open space generalized as the alkali sink and saltbush scrub vegetation communities, including Sites 1, 3, 5, 6, and 8 and portions of the gen-tie line route (Appendix D.2). In addition, numerous CNDDB occurrences are located throughout the region, including the Buttonwillow Ecological Reserve, which abuts Sites 5 and 6 and the Project collector lines on Sites 1, 3, 5, 6, and 8 and the gen-tie line route (Appendix D.2).

High-quality habitat for blunt-nosed leopard lizard is considered open with scattered shrubs, little grass cover, and abundant rodent burrows, which the lizard uses as escape cover, thermal cover, and resting areas. This species will also use shrubs as hiding and thermal cover. Direct impacts to blunt-nosed leopard lizard could occur if they are present within the Project site during construction including permanent loss of suitable habitat. Direct impacts to individual blunt-nosed leopard lizard could also occur from adults or young being crushed in burrows or from collisions with vehicles, resulting in injury or death. Indirect impacts on individual blunt-nosed leopard lizard could occur from construction-related disturbances, including noise, ground vibration, night lighting, and increased human presence, which could lead to habitat degradation. The intensity of the exposure to stressors would diminish with distance. The direct and indirect impacts to blunt-nosed leopard lizard would be considered significant without mitigation. These direct and indirect operational impacts to blunt-nosed leopard lizard are potentially significant, but would be reduced through

implementation of Mitigation Measures MM 4.4-11 and MM 4.4-21, which require protocol-level surveys and avoidance measures and avoidance of sensitive vegetation for blunt-nosed leopard lizard. Potential impacts to blunt-nosed leopard lizard would be further reduced through implementation of Mitigation Measures MM 4.4-1 (On-Site Biological Monitoring), MM 4.4-2 (WEAT), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-5 (Invasive Species Control), MM 4.4-17 (Fence Design and Site Permeability), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), and MM 4.4-20 (Lighting Design). Additionally, implementation of Mitigation Measure MM 4.1-4, as described in Section 4.1, *Aesthetics and Visual Resources*, would reduce the disturbance to native vegetation. The above listed mitigation measures would reduce the potential impacts to blunt-nosed leopard lizard to less than significant.

Because Project construction would permanently remove suitable habitat for blunt-nosed leopard lizard Sites 1, 3, 5, 6, and 8 and portions of the gen-tie line route, it is unlikely that this species would occur within these areas during the operation and maintenance of the proposed Project. However, significant direct impacts could occur from vehicle use, potentially causing the death or injury of adults. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, and dust, which could disrupt the species. Indirect impacts could also result from the removal of vegetation during vegetation management activities. These direct and indirect operational impacts to blunt-nosed leopard lizard are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to blunt-nosed leopard lizard to less than significant.

Direct and indirect impacts to blunt-nosed leopard lizard during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, alkali sink and saltbush scrub vegetation communities, and dens/burrows) present on, and/or adjacent to, the Project site at the time of decommissioning. Additional indirect impacts could result from construction-related noise and ground vibration, vehicle emissions, dust, and habitat degradation from introduction of non-native plants or other factors. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to blunt-nosed leopard lizard. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during decommissioning. Therefore, impacts to blunt-nosed leopard lizard would be reduced to less than significant during decommissioning of the proposed Project.

Coast Horned Lizard

The Coast horned lizard was not observed during reconnaissance surveys. The BSA supports suitable grassland and riparian habitat with sandy soils for this species. This species has moderate potential to occur in suitable habitat on Site 8 and in portions of the gen-tie line route (Appendix D.2). This species occurs in open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley-foothill hardwood, conifer, riparian, pine-cypress, juniper, and annual grassland habitats. Based on existing vegetation mapped on the BSA,

the proposed Project would result in the permanent loss of 19 acres of suitable grassland and unvegetated habitat on Site 8 and the gen-tie line route.

If present on the Project site at the time of construction activities, it is possible that the species could be injured or crushed by on-site equipment or vehicles. Indirect impacts on Coast horned lizard could occur from construction-related noise and ground vibration, vehicle emissions, dust, and habitat degradation from introduction of non-native plants or other factors. These direct and indirect operational impacts to Coast horned lizard are potentially significant, but would be reduced through implementation of Mitigation Measure MM 4.4-2, which requires educating personnel of sensitive biological resources. Potential impacts to Coast horned lizard would be further reduced through implementation of Mitigation Measures MM 4.4-1 (On-Site Biological Monitoring), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-5 (Invasive Species Control), MM 4.4-7 (Wildlife Clearance Surveys), MM 4.4-17 (Fence Design and Site Permeability), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), and MM 4.4-20 (Lighting Design). Additionally, implementation of MM 4.1-4, as described in Section 4.1, *Aesthetics and Visual Resources*, would reduce the disturbance to native vegetation. Implementation of these mitigation measures would reduce the potential construction-related impacts to Coast horned lizard to less than significant.

Because Project construction would permanently remove suitable habitat for Coast horned lizard on Site 8 and in the gen-tie route, it is unlikely that this species would occur within these areas during the operation and maintenance of the proposed Project. However, significant direct impacts could occur from vehicle use, potentially causing the death or injury of adults. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, and dust, which could disrupt the species. Indirect impacts could also result from the removal of vegetation during vegetation management activities. These direct and indirect operational impacts to Coast horned lizard are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to Coast horned lizard to less than significant.

Direct and indirect impacts to Coast horned lizard during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, grassland and riparian habitat) present on, and/or adjacent to, the Project site at the time of decommissioning. Additional indirect impacts could result from construction-related noise and ground vibration, vehicle emissions, dust, and habitat degradation from introduction of non-native plants or other factors. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to Coast horned lizard. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during decommissioning. Therefore, impacts to Coast horned lizard would be reduced to less than significant during decommissioning of the proposed Project.

California Glossy Snake

California glossy snake was not observed during reconnaissance surveys, although this species is nocturnal and spends the day in burrows. This species has moderate potential to occur in suitable habitat on Sites 1, 2, 3, 5, 6, and 8, and in portions of the gen-tie line route. This species is found in a wide variety of habitat, including arid scrub, rocky washes, grasslands, shrublands, chaparral, and open areas with loose soil. The BSA supports suitable scrub and grassland habitats for California glossy snake. Based on existing vegetation mapped on the BSA, the proposed Project would result in the permanent loss of 499 acres of suitable grassland and scrub habitat on Sites 1, 2, 3, 5, 6, and 8 and the gen-tie line route (Appendix D.2). Direct loss of habitat resulting from construction activities could reduce the available amount of habitat in the region for this species.

If present on the Project site at the time of construction activities, it is possible that the species could be injured or crushed by on-site equipment or vehicles. If any individuals are in burrows and the burrows go undetected, individuals could be crushed during construction activities. Indirect impacts on California glossy snake could occur from construction-related noise and ground vibration, vehicle emissions, dust, and habitat degradation from introduction of non-native plants or other factors. These direct and indirect operational impacts to California glossy snake are potentially significant, but would be reduced through implementation of Mitigation Measure MM 4.4-2, which requires educating personnel of sensitive biological resources. Potential impacts to California glossy snake would be further reduced through implementation of Mitigation Measures MM 4.4-1 (On-Site Biological Monitoring), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-5 (Invasive Species Control), MM 4.4-7 (Wildlife Clearance Surveys), MM 4.4-17 (Fence Design and Site Permeability), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), and MM 4.4-20 (Lighting Design). Additionally, implementation of Mitigation Measure MM 4.1-4, as described in Section 4.1, Aesthetics and Visual Resources, would reduce the disturbance to native vegetation. Implementation of these mitigation measures would reduce the potential construction-related impacts to California glossy snake to less than significant.

Because Project construction would permanently remove suitable habitat for California glossy snake on Sites 1, 2, 3, 5, 6, and 8, and the gen-tie line route, it is unlikely that this species would occur within these areas during the operation and maintenance of the proposed Project. However, if individuals are using rodent holes on the site for nesting, significant direct impacts could occur from vehicle use, potentially causing the death or injury of adults, eggs, and larvae, as well as burrow collapse, nest abandonment, and reduced nesting success. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, and dust, which could disrupt the species. Indirect impacts could also result from the removal of vegetation during vegetation management activities. These direct and indirect operational impacts to California glossy snake are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to California glossy snake to less than significant.

Direct and indirect impacts to California glossy snake during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, burrows) present on, and/or adjacent to, the Project site at the time of decommissioning. Additional indirect impacts could result from construction-related noise and ground vibration, vehicle emissions, dust, and habitat degradation from introduction of non-native plants or other factors. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to California glossy snake. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during decommissioning. Therefore, impacts to California glossy snake would be reduced to less than significant during decommissioning of the proposed Project.

San Joaquin Coachwhip

San Joaquin coachwhip was not observed during reconnaissance surveys. The BSA supports suitable scrub and grassland habitats for San Joaquin coachwhip. It inhabits arid environments with sparse vegetation, often burrowing in rodent holes for refuge and oviposition. This species has moderate potential to occur in suitable habitat on Sites 1, 2, 3, 5, 6, and 8 and in portions of the gen-tie line route (Appendix D.2). Based on existing vegetation mapped on the BSA, the proposed Project would result in the permanent loss of 499 acres of suitable grassland and scrub habitat on Sites 1, 2, 3, 5, 6, and 8, and the gen-tie line route.

If present on the Project site at the time of construction activities, it is possible that the species could be injured or crushed by on-site equipment or vehicles. If any individuals are in rodent holes and the rodent holes go undetected, individuals could be crushed during construction activities. Indirect impacts on San Joaquin coachwhip could occur from construction-related noise and ground vibration, vehicle emissions, dust, and habitat degradation from introduction of non-native plants or other factors. These direct and indirect operational impacts to San Joaquin coachwhip are potentially significant, but would be reduced through implementation of Mitigation Measure MM 4.4-2, which requires educating personnel of sensitive biological resources. Potential impacts to San Joaquin coachwhip would be further reduced through implementation of Mitigation Measures MM 4.4-1 (On-Site Biological Monitoring), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-5 (Invasive Species Control), MM 4.4-7 (Wildlife Clearance Surveys), MM 4.4-17 (Fence Design and Site Permeability), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), and MM 4.4-20 (Lighting Design). Additionally, implementation of Mitigation Measure MM 4.1-4, as described in Section 4.1, *Aesthetics and Visual Resources*, would reduce the disturbance to native vegetation. Implementation of these mitigation measures would reduce the potential construction-related impacts to San Joaquin coachwhip to less than significant.

Because Project construction would permanently remove suitable habitat for San Joaquin coachwhip on Sites 1, 2, 3, 5, 6, and 8, and the gen-tie route, it is unlikely that this species would occur within these areas during the operation and maintenance of the proposed Project. However, if individuals are using rodent holes on the site for nesting, significant direct impacts could occur from vehicle use, potentially causing the death or injury of adults, eggs, and larvae, as well as

burrow collapse, nest abandonment, and reduced nesting success. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, and dust, which could disrupt the species. Indirect impacts could also result from the removal of vegetation during vegetation management activities. These direct and indirect operational impacts to San Joaquin coachwhip are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to San Joaquin coachwhip to less than significant.

Direct and indirect impacts to San Joaquin coachwhip during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, rodent holes) present on, and/or adjacent to, the Project site at the time of decommissioning. Additional indirect impacts including construction-related noise and ground vibration, vehicle emissions, dust, and habitat degradation from introduction of non-native plants or other factors. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to San Joaquin coachwhip. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during decommissioning. Therefore, impacts to San Joaquin coachwhip would be reduced to less than significant during decommissioning of the proposed Project.

Birds

Tricolored Blackbird

Tricolored blackbird was not observed during reconnaissance surveys. It nests near freshwater and emergent wetlands with cattails or tules, but also in Himalayan blackberry (*Rubus armeniacus*), and forages in grasslands, woodlands, and agricultural areas. Suitable nesting habitats were observed during the habitat assessment at various constructed farm ponds within the BSA at Sites 1, 2, 4, and 5; a small portion of Site 6; and Site 8 (Appendix D.2).

Proposed construction activities could result in permanent loss of native habitat used for foraging, nesting, and wintering. Proposed construction activities may also result in vehicular strikes to birds that are attempting to flee the disturbance, which could cause injuries or mortality. This species nests in colonies where males perch and sing within nesting habitat, and where birds make regular trips between sometimes distant foraging habitat. As such, indirect impacts from construction activities include decreased suitability of habitat and disturbance of breeding and foraging activities from increased noise, vehicle emissions, dust, night lighting, and other human activities. If the species is present, the direct and indirect impacts to tricolored blackbird would be considered significant without mitigation. Potential impacts to tricolored blackbird would be reduced through implementation of Mitigation Measure MM 4.4-12, which requires pre-activity surveys for nesting birds. Potential impacts to tricolored blackbird would be further reduced through implementation of Mitigation Measures MM 4.4-1 (On-Site Biological Monitoring), MM 4.4-2 (WEAT), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-5 (Invasive Species Control), MM 4.4-7 (Wildlife Clearance Surveys), MM 4.4-14 (Bird Flight Diverters), MM 4.4-18 (Hazardous Waste

Cleanup), MM 4.4-19 (Delineation of Property Boundaries), MM 4.4-20 (Lighting Design), MM 4.4-21 (Sensitive Vegetation Avoidance and Mitigation), MM 4.4-22 (Aquatic Resources Delineation Report), and MM 4.4-23 (Aquatic Resources Mitigation). Additionally, implementation of Mitigation Measure MM 4.1-4, as described in Section 4.1, *Aesthetics and Visual Resources*, would reduce the disturbance to native vegetation, thereby further reducing impacts on tricolored blackbird habitat. Implementation of these mitigation measures would reduce the potential construction-related impacts to tricolored blackbird to less than significant.

If tricolored blackbirds are flying, foraging, or nesting in Sites 1, 2, 4, 5, 6, and Site 8 during the operation and maintenance of the proposed Project, significant direct impacts could result in mortality from crushing during construction or vehicle collisions with nesting birds and/or destruction of nests and eggs during vegetation management activities. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, and dust, which could disrupt the species. These direct and indirect operational impacts to tricolored blackbird are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to tricolored blackbird to less than significant.

Direct and indirect impacts to tricolored blackbird during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, suitable nesting/foraging habitat) present on, and/or adjacent to, the Project site at the time of decommissioning. Temporary indirect impacts from decommissioning activities include the disturbance of foraging individuals, reducing the suitability of foraging habitat, and causing nest failure during breeding season from noise, dust, and other disturbances, which would result in a substantial adverse impact on tricolored blackbird. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to tricolored blackbird. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during decommissioning. Therefore, impacts to tricolored blackbird would be reduced to less than significant during decommissioning of the proposed Project.

Burrowing Owl

Numerous potentially suitable burrowing owl burrows or burrow complexes were observed during focused surveys conducted in 2024. One occupied burrowing owl burrow was observed in Site 5 during the botanical survey effort in 2024 and burrowing owl was also detected at Site 2 during small mammal trapping (Appendix D.2). Based on habitat modeling, the proposed Project would result in the permanent loss of 272 acres of high-suitability burrowing owl habitat on Sites 3 and 8, and 7,946 acres of low- to moderate-suitability habitat on all sites and the gen-tie line route (Appendix D.2).

The proposed Project would directly affect suitable habitat for burrowing owls. Nesting and foraging habitat that contains suitable burrows for burrowing owl would be permanently removed

during Project site development. In addition to direct impacts to burrows and habitat, construction activities could directly impact occupied burrows resulting in injury or mortality to individual owls, eggs and chicks, nest destruction, displacement of owls and loss of territory, and disruption of breeding activities. Burrowing owls in flight could collide with machinery or vehicles. Potential temporary indirect effects on burrowing owls include those resulting from decreased suitability of habitat in the proposed Project vicinity due to various factors, such as increased noise from construction activities and vehicles, vehicle emissions, dust, introduction and spread of invasive plant species, and other human activity. Construction activities could disrupt breeding and foraging activities and prevent birds from attending to nests or could cause birds to flush from their nests, endangering eggs and hatchlings. Dust could have an adverse effect on the health of hatchlings and adults, as well as on the viability and presence of prey insects and on the overall health of vegetation. Displaced birds may undergo increased stress, competition, or predation while attempting to establish new territories in unfamiliar areas. Temporary impacts may also result from unauthorized actions from construction personnel, such as harassment of individual burrowing owl. The direct and indirect impacts to burrowing owl would be considered significant without mitigation. Potential impacts to burrowing owl would be reduced through implementation of Mitigation Measures MM 4.4-13 and MM 4.4-16, which requires burrowing owl burrow setbacks and pre-activity surveys for burrowing owl. Potential impacts to burrowing owl would be further reduced through implementation of Mitigation Measures MM 4.4-1 (On-Site Biological Monitoring), MM 4.4-2 (WEAT), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-5 (Invasive Species Control), MM 4.4-7 (Wildlife Clearance Surveys), MM 4.4-12 (Pre-Construction Surveys for Nesting Birds), MM 4.4-14 (Bird Flight Diverters), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), MM 4.4-20 (Lighting Design), and MM 4.4-21 (Sensitive Vegetation Avoidance and Mitigation). Additionally, implementation of Mitigation Measure MM 4.1-4, as described in Section 4.1, *Aesthetics and Visual Resources*, would reduce the disturbance to native vegetation. Implementation of these mitigation measures would reduce the potential construction-related impacts to burrowing owl to less than significant.

Because Project construction would permanently remove suitable habitat for burrowing owl, it is unlikely that this species would occur within these areas during the operation and maintenance of the proposed Project. However, burrowing owls have the potential to utilize partially-developed habitats and human-made structures. Direct impacts on burrowing owls could occur from collisions with vehicles, resulting in injury or death. If individuals are using burrows or human-made structures on-site, significant direct impacts could occur from vehicle use, potentially causing the death or injury of adults and young, as well as burrow collapse, burrow abandonment, and reduced reproduction success. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, and dust, which could disrupt this species. These direct and indirect operational impacts to burrowing owl are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to burrowing owl to less than significant.

Direct and indirect impacts to burrowing owl during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example,

burrows and human-made structures) present on, and/or adjacent to, the Project site at the time of decommissioning. Additional indirect impacts from decommissioning activities would include noise and ground vibration, vehicle emissions, dust, and habitat degradation. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to burrowing owl. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during decommissioning. Therefore, impacts to burrowing owl would be reduced to less than significant during decommissioning of the proposed Project.

Swainson's Hawk

Swainson's hawks continue to nest around agricultural areas in the Central Valley and smaller adjacent valleys, and the species has adapted to agricultural fields, particularly in the Central Valley, where such areas have proliferated at the expense of natural vegetation communities. The majority of nests are found adjacent to agricultural fields. In the San Joaquin Valley, Swainson's hawks nest in riparian areas and in isolated tree clusters, often near rural residences or other areas with some human disturbance. Swainson's hawks show nest site fidelity and typically forage in suitable habitat adjacent to their nest sites. Between April and August 2024, a total of 33 Swainson's hawks were incidentally observed perched and flying/foraging during biological studies and has potential to nest in portions of Sites 1, 4, 5, 6, and 8. Eleven Swainson's hawks were observed at Site 6 and Site 8. Four Swainson's hawks were observed at Site 2, four Swainson's hawks were observed at Site 5, and one Swainson's hawk was observed at Site 3. This species has potential to forage within all sites and the gen-tie line route. No nests were documented within or adjacent to the BSA. The closest, known active nest is located approximately 3.5 miles southwest of the BSA.

The analysis of biological impacts included a modeling exercise to identify suitable foraging and nesting habitat for Swainson's hawk, within a 10-mile radius of the BSA in 2024 (Appendix D.2). The modeling revealed that the proposed Project would result in the permanent loss of 13 acres of moderate- to high-suitability Swainson's hawk nesting habitat in Sites 6 and 8 and the gen-tie line route, and 3,328 acres of low to moderately suitable Swainson's hawk nesting habitat in Sites 1, 4 through 6, and 8 and the gen-tie line route (Appendix D.2).

Removal of trees supporting nests or physical removal of nests would be considered a significant impact. However, with implementation of Mitigation Measure MM 4.4-12, if any active nests are discovered during protocol surveys, a 0.5 mile no-disturbance buffer shall be established while the nest(s) are active. If a 0.5 mile no-disturbance buffer is not feasible, CDFW shall be consulted to discuss how to implement the Project and avoid take. If take cannot be avoided, the project proponent shall consult with CDFW regarding the potential need for an ITP for Swainson's Hawk, per Mitigation Measure MM 4.4-12. Therefore, no direct impacts to an active nest would occur. Temporary indirect impacts from construction activities include the disturbance of foraging individuals, reducing the suitability of foraging habitat, and causing nest failure during breeding season from construction-related noise, dust, and other disturbances, which would result in a substantial adverse impact on Swainson's hawk.

The direct and indirect impacts to Swainson's hawk would be considered significant without mitigation. Potential impacts to Swainson's hawk would be reduced through implementation of Mitigation Measure MM 4.4-12, which requires pre-construction surveys for Swainson's hawk and nest avoidance measures. Potential impacts to Swainson's hawk would be further reduced through implementation of Mitigation Measures MM 4.4-1 (On-Site Biological Monitoring), MM 4.4-2 (WEAT), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-7 (Wildlife Clearance Surveys), MM 4.4-14 (Bird Flight Diverters), MM 4.4-19 (Delineation of Property Boundaries), MM 4.4-20 (Lighting Design), and MM 4.4-21 (Sensitive Vegetation Avoidance and Mitigation). Additionally, implementation of Mitigation Measure MM 4.1-4, as described in Section 4.1, *Aesthetics and Visual Resources*, would reduce the disturbance to native vegetation. Implementation of these mitigation measures would reduce the potential construction-related impacts to Swainson's hawk to less than significant.

Potential direct impacts to Swainson's hawk from the operations and maintenance phase of the proposed Project may occur through the collisions into and/or electrocution from power lines anticipated to be installed throughout the Project site and gen-tie lines. Additionally, the proposed Project's removal of foraging habitat within 5 miles of active nests would reduce the ability of Swainson's hawks to find sufficient prey to support nesting activities, resulting in reduced nesting success through loss or reduced health or vigor of the adults, eggs, or young over long-term operation. Raptors may be able to use the tree limbs, poles, or posts surrounding the facilities as perch sites for hunting. While collision/electrocution impacts to Swainson's hawk are potentially significant, impacts would be reduced through the implementation of Mitigation Measure MM 4.4-24. Mitigation Measure MM 4.4-24 requires power lines to be installed per Avian Power Line Interaction Committee (APLIC) standards, reducing the likelihood of collision and/or electrocution from power lines. The potential for a significant impact to result from general (non-power line) avian collisions at the Project site is unlikely. These direct and indirect operational impacts to Swainson's hawk are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to Swainson's hawk to less than significant.

Direct and indirect impacts to Swainson's hawk during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, suitable nesting/foraging habitat) present on, and/or adjacent to, the Project site at the time of decommissioning. Additional direct impacts may occur if removal of project structures (for example, transmission poles) contain active nests. Removal of project structures supporting nests or physical removal of nests would be considered a significant impact. Temporary indirect impacts from decommissioning activities include the disturbance of foraging individuals, reducing the suitability of foraging habitat, and causing nest failure during breeding season from noise, dust, and other disturbances, which would result in a substantial adverse impact on Swainson's hawk. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to Swainson's hawk. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be

implemented during decommissioning. Therefore, impacts to Swainson's hawk would be reduced to less than significant during decommissioning of the proposed Project.

Loggerhead Shrike

Loggerhead shrike prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. The species frequents agricultural fields and pastures, where it preys on insects. This species was observed during field visits in 2022 through 2024 in Sites 5 and 8 (Appendix D.2). There is high potential for loggerhead shrike to nest in, and/or adjacent to, the BSA where suitable nesting trees or shrubs occur within open habitats on Sites 1 and 8 and along small portions of the gen-tie line route; it has potential to forage on all sites and along the gen-tie line route (Appendix D.2). Based on existing vegetation mapped on the BSA, the proposed project would result in the modification or permanent loss of up to 177 acres of suitable scrub nesting habitat in Sites 1 and 8 and along the gen-tie line route and up to 11,477 acres of suitable foraging habitat (Appendix D.2).

Proposed construction activities could result in permanent loss of native habitat used for foraging, nesting, and wintering. Direct impacts may also result from vehicular strikes to individuals that are attempting to flee the disturbance, which could cause injuries or mortality. Indirect impacts from construction activities include decreased suitability of habitat and disturbance of breeding and foraging activities from increased noise, vehicle emissions, dust, night lighting, and other human activities. The direct and indirect impacts to loggerhead shrike would be considered potentially significant without mitigation. Potential impacts to loggerhead shrike would be reduced through implementation of Mitigation Measure MM 4.4-12, which requires pre-activity surveys for nesting birds. Potential impacts to loggerhead shrike would be further reduced through implementation of Mitigation Measures MM 4.4-1 (On-Site Biological Monitoring), MM 4.4-2 (WEAT), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-5 (Invasive Species Control), MM 4.4-7 (Wildlife Clearance Surveys), MM 4.4-14 (Bird Flight Diverters), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), MM 4.4-20 (Lighting Design), MM 4.4-21 (Sensitive Vegetation Avoidance and Mitigation), MM 4.4-22 (Aquatic Resources Delineation Report), and MM 4.4-4.4-23 (Aquatic Resources Mitigation). Additionally, implementation of Mitigation Measure MM 4.1-4, as described in Section 4.1, *Aesthetics and Visual Resources*, would reduce the disturbance to native vegetation. Implementation of these mitigation measures would reduce the potential construction-related impacts to loggerhead shrike to less than significant.

If loggerhead shrikes are nesting on Sites 1 and 8, and along the gen-tie line route, and/or flying and foraging through all areas, significant direct impacts could result in mortality from crushing during construction or vehicle collisions with nesting birds and/or destruction of nests and eggs during vegetation management activities. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, and dust, which could disrupt the species. These direct and indirect operational impacts to loggerhead shrikes are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to loggerhead shrikes to less than significant.

Direct and indirect impacts to loggerhead shrike during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, suitable nesting/foraging habitat) present on, and/or adjacent to, the Project site at the time of decommissioning. Temporary indirect impacts from decommissioning activities include the disturbance of foraging individuals, reducing the suitability of foraging habitat, and causing nest failure during breeding season from noise, dust, and other disturbances, which would result in a substantial adverse impact on loggerhead shrike. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to loggerhead shrike. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during decommissioning. Therefore, impacts to loggerhead shrike would be reduced to less than significant during decommissioning of the proposed Project.

Mammals

Buena Vista Lake Ornate Shrew

Buena Vista Lake ornate shrew was not observed during reconnaissance surveys or during focused camera surveys conducted in 2024 (Appendix D.2). However, there are suitable water sources, moist soils, and areas of dense cover within the Project site to support this species. In addition, there is federally designated critical habitat for this species at Goose Lake, adjacent to Site 8 at the north end of the Project site (78 FR 39835–39867) (**Figure 4.4-2:** *Critical Habitat Area in the BSA*). A strip of vegetation (up to approximately 35 feet wide) along a section of the edge of Site 8 is mapped as natural vegetation that is suitable for the species. Most of the vegetation in this portion of the Project site has been mapped as general agriculture, which is not suitable for Buena Vista Lake ornate shrew. Because of the proximity of the BSA to Goose Lake and critical habitat, as well as the presence of suitable habitat on Site 8 Buena Vista Lake ornate shrew has low to moderate potential to occur on Site 8 (Appendix D.2). No other areas of the BSA provide suitable habitat for this species to occur.

Direct impacts on occupied habitat may occur during grading or excavation for construction. Project impacts would be considered significant if aquatic habitat (that is, marshes or swamps) within the Project site was determined to be, or assumed to be, occupied by Buena Vista Lake ornate shrew. Direct impacts on Buena Vista Lake ornate shrew could include mortality related to an increase in vehicular traffic. Indirect effects, including reduction in water quality and altered hydrology caused by storm water runoff, erosion, and siltation; litter and dumping; and introduction of invasive plant species could result in habitat degradation leading to lower reproductive success of Buena Vista Lake ornate shrew outside the BSA, and a decline in numbers or eventual elimination of these species from the affected habitat. Additional indirect impacts on Buena Vista Lake ornate shrew could include noise and vibration disturbance causing individuals to break dormancy, and exposure to herbicides, pesticides, and other toxins. The direct and indirect impacts to Buena Vista Lake ornate shrew would be considered significant without mitigation. Potential impacts to Buena Vista Lake ornate shrew would be reduced through implementation of Mitigation Measure MM 4.4-2, which requires educating personnel of sensitive biological resources, and

Mitigation Measure MM 4.4-5, which requires measures to prevent the introduction and/or spread of invasive species. Potential impacts to Buena Vista Lake ornate shrew would be further reduced through implementation of Mitigation Measures MM 4.4-1 (On-Site Biological Monitoring), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-7 (Wildlife Clearance Surveys), MM 4.4-17 (Fence Design and Site Permeability), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), MM 4.4-20 (Lighting Design) MM 4.4-21 (Sensitive Vegetation Avoidance and Mitigation), MM 4.4-22 (Aquatic Resources Delineation Report), and MM 4.4-23 (Aquatic Resources Mitigation). Additionally, implementation of MM 4.1-4, as described in Section 4.1, *Aesthetics and Visual Resources*, would reduce the disturbance to native vegetation. Finally, MM 4.4-25 would require that, prior to initiating ground disturbance during the construction and decommissioning phases of the project, a preconstruction survey must be conducted by a qualified biologist, in areas of suitable habitat for Buena Vista Lake ornate shrew, and the suitable habitat shall be avoided if feasible. If avoidance is not feasible, a qualified biologist must identify suitable habitat for Buena Vista Lake ornate shrew within the project site and prepare a survey plan for review and approval by the USFWS. If Buena Vista Lake ornate shrew is detected, the project proponent shall coordinate with the USFWS to determine whether take can be avoided or take authorization under the ESA is needed. If take is authorized, then the project proponent must comply with all provisions of the authorization, and provide compensatory mitigation for impacted natural habitat as determined by USFWS. Implementation of these mitigation measures would reduce the potential impacts to giant Buena Vista Lake ornate shrew to less than significant during construction of the proposed Project.

Project impacts during operation and maintenance activities would be considered significant if aquatic habitat (for example, marshes or swamps) within the Project site was determined to be, or assumed to be, occupied by Buena Vista Lake ornate shrew. Direct impacts on Buena Vista Lake ornate shrew could include mortality related to an increase in vehicular traffic. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, and dust, which could disrupt the species. Indirect effects, including reduction in water quality and altered hydrology caused by storm water runoff, erosion, and siltation; litter and dumping; and introduction of invasive plant species could result in habitat degradation leading to lower reproductive success of Buena Vista Lake ornate shrew. These direct and indirect operational impacts to Buena Vista Lake ornate shrew are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to Buena Vista Lake ornate shrew to less than significant.

Direct and indirect impacts to Buena Vista Lake ornate shrew during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, marshes or swamps) present on, and/or adjacent to, the Project site at the time of decommissioning. Additional indirect impacts to Buena Vista Lake ornate shrew could result from decommissioning activities that cause noise and ground vibration, vehicle emissions, dust, and habitat degradation. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to Buena Vista Lake ornate shrew. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for

construction activities would also be implemented during decommissioning. Therefore, impacts to Buena Vista Lake ornate shrew would be reduced to less than significant during decommissioning of the proposed Project.

Giant Kangaroo Rat

Giant kangaroo rat was not observed during reconnaissance surveys or were trapped during small mammal trappings conducted in 2024 and 2025 (Appendix D.2). However, the BSA identified suitable soils and sparse vegetative areas which have moderate to high potential to occur on portions of Sites 1, 3, 5, 6, and 8 and in portions of the gen-tie line route (Appendix D.2). Furthermore, several collector lines are proposed along areas of saltbush scrub and alkali sink, including the Buttonwillow Ecological Reserve along 7th Standard Road (**Figure 4.4-2:** *Critical Habitat Area in the BSA*) (Appendix D.2). Based on habitat modeling, the proposed Project would result in the permanent loss of 468 acres of moderately suitable giant kangaroo rat habitat on Sites 1, 3, 5, 6, and 8 and the gen-tie line route (Appendix D.2). Additionally, burrow surveys conducted within the BSA resulted in several small mammal burrows suitable in size and shape for giant kangaroo rat within the BSA. Most small mammal burrows were observed within the natural areas of saltbush scrub, alkali sink and non-native grassland areas; however, burrows were not limited to only these natural areas but did occur within the margins of the agricultural areas in the proximity of the natural areas. Although numerous burrows were observed in the small mammal trapping survey area with many that were characteristic of kangaroo rat activity, no distinctive giant kangaroo rat was noted within the trap lines sampled, and not enough of the area was sampled to reach a conclusion regarding giant kangaroo rat presence or lack of presence within all areas of the Project site.

Direct impacts to giant kangaroo rat from proposed Project construction activities may include permanent and temporary loss of habitat, injury or killing of an individual or young within an occupied burrow, or collisions from Project-related equipment. Additional suitable habitat would remain surrounding the Project site; therefore, there would be no significant impacts to giant kangaroo rat suitable habitat with development of the proposed Project. Indirect effects due to displacement of this species could also occur as a result of construction activities associated with the proposed Project. Additional indirect impacts on giant kangaroo rat could include noise and vibration disturbance causing this species to break dormancy, and exposure to herbicides, pesticides, and other toxins. These direct and indirect impacts to giant kangaroo rat are potentially significant, but would be reduced through implementation of Mitigation Measure MM 4.4-15, which requires pre-activity surveys and avoidance measures if individuals are observed on-site. Potential impacts to giant kangaroo rat would be further reduced through implementation of Mitigation Measures MM 4.4-1 (On-Site Biological Monitoring), MM 4.4-2 (WEAT), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-7 (Wildlife Clearance Surveys), MM 4.4-17 (Fence Design and Site Permeability), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), and MM 4.4-20 (Lighting Design). Implementation of these mitigation measures would reduce the potential impacts to giant kangaroo rat to less than significant during construction of the proposed Project.

Because Project construction would permanently remove suitable habitat for giant kangaroo rat on Sites 1, 3, 5, 6, and 8, and the gen-tie route, it is unlikely that this species would occur within these areas during the operation and maintenance of the proposed Project. However, if individuals are using burrows on the Project site during operations and maintenance, significant direct impacts could occur from vehicle use, potentially causing the death or injury of adults and young, as well as burrow collapse, burrow abandonment, and reduced reproductive success. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, and dust, which could disrupt this species. These direct and indirect operational impacts to giant kangaroo rat are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to giant kangaroo rat to less than significant.

Direct and indirect impacts to giant kangaroo rat during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, burrows) present on, and/or adjacent to, the Project site at the time of decommissioning. Additional indirect impacts including noise and ground vibration, vehicle emissions, dust, and habitat degradation. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to giant kangaroo rat. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during decommissioning. Therefore, impacts to giant kangaroo rat would be reduced to less than significant during decommissioning of the proposed Project.

Tipton Kangaroo Rat

Tipton kangaroo rat was observed during small mammal trapping conducted in 2024 and 2025 (Appendix D.2). Tipton kangaroo rats are known to occur within the Goose Lake area northwest of the BSA. The northern edge of the BSA abuts the southernmost edge of Goose Lake (Appendix D.21). The land covers in this area are a mixture of agriculture, shrublands, grassland, wetlands, and vernal pools. Because of the proximity of the BSA to Goose Lake and CNDDB records, there is a potential for Tipton kangaroo rat to occupy the untouched natural areas that are not under agricultural production (Appendix D.2). Based on habitat modeling, the proposed Project may result in the modification or loss of up to 482 acres of high- to moderate-suitability Tipton kangaroo rat habitat on Sites 1, 3, 5, 6, and 8 and the gen-tie line route (Appendix D.2)

Direct impacts to Tipton kangaroo rat from proposed Project construction activities may include permanent and temporary loss of habitat, injury or killing of an individual or young within an occupied burrow, or collisions from proposed Project-related equipment. Additional suitable habitat would remain surrounding the Project site; therefore, there would be no significant impacts to Tipton kangaroo rat suitable habitat with development of the proposed Project. Indirect effects due to displacement of this species could also occur as a result of construction activities associated with the proposed Project. Additional indirect impacts on Tipton kangaroo rat could include noise and vibration disturbance causing this species to break dormancy, and exposure to herbicides, pesticides, and other toxins. These direct and indirect impacts to Tipton kangaroo rat are potentially

significant, but would be reduced through implementation of Mitigation Measure MM 4.4-15, which requires pre-activity surveys and avoidance measures if individuals are observed on-site. Potential impacts to Tipton kangaroo rat would be further reduced through implementation of Mitigation Measures MM 4.4-1 (On-Site Biological Monitoring), MM 4.4-2 (WEAT), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-7 (Wildlife Clearance Surveys), MM 4.4-17 (Fence Design and Site Permeability), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), and MM 4.4-20 (Lighting Design). Implementation of these mitigation measures would reduce the potential impacts to Tipton kangaroo rat to less than significant during construction of the proposed Project.

Because Project construction would permanently remove suitable habitat for Tipton kangaroo rat on Sites 1, 3, 5, 6, and 8, and the gen-tie route, it is unlikely that this species would occur within these areas during the operation and maintenance of the proposed Project. However, if individuals are using burrows on-site, significant direct impacts could occur from vehicle use, potentially causing the death or injury of adults and young, as well as burrow collapse, burrow abandonment, and reduced reproductive success. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, and dust, which could disrupt this species. These direct and indirect operational impacts to Tipton kangaroo rat are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to Tipton kangaroo rat to less than significant.

Direct and indirect impacts to Tipton kangaroo rat during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, burrows) present on, and/or adjacent to, the Project site at the time of decommissioning. Additional indirect impacts including noise and ground vibration, vehicle emissions, dust, and habitat degradation. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to Tipton kangaroo rat. Because proposed Project impacts from decommissioning are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during decommissioning. Therefore, impacts to Tipton kangaroo rat would be reduced to less than significant during decommissioning of the proposed Project.

American Badger

American badger was not observed during reconnaissance surveys. This species is sometimes known to occupy agricultural areas. The active agriculture within the BSA is generally composed of alfalfa, cotton, and sorghum, which are heavily irrigated and managed, providing only low-quality habitat for badger. Similarly, areas mapped as disturbed within the BSA are primarily disked, tilled, or cleared fields, which also only provide low-quality habitat. Based on existing vegetation mapped on the BSA, the proposed Project would result in the permanent loss of 468 acres of suitable grassland and scrub habitat on Sites 1, 3, 5, 6, and 8 and portions of the gen-tie line route (Appendix D.2). However, the surrounding lands available have comparable suitable habitat.

Direct impacts to this species could occur if it is present within the Project site during construction including permanent loss of suitable habitat. Direct impacts on individual American badgers could also occur from adults or young being crushed in dens or from collisions with vehicles, resulting in injury or death. Indirect impacts to individual American badgers could occur from construction-related disturbances, including noise, ground vibration, night lighting, and increased human presence. These direct and indirect operational impacts to American badger are potentially significant, but would be reduced through implementation of Mitigation Measure MM 4.4-16, which requires pre-activity surveys for American badger. Potential impacts to American badger would be further reduced through implementation of Mitigation Measures MM 4.4-1 (On-Site Biological Monitoring), MM 4.4-2 (WEAT), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-7 (Wildlife Clearance Surveys), MM 4.4-17 (Fence Design and Site Permeability), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), and MM 4.4-20 (Lighting Design). Implementation of these mitigation measures would reduce the potential impacts to American badger to less than significant during construction of the proposed Project.

Because Project construction would permanently remove suitable habitat for American badger on Sites 1, 3, 5, 6, and 8, and the gen-tie route, it is unlikely that this species would occur within these areas during the operation and maintenance of the proposed Project. However, if individuals are using dens on-site during project operations and maintenance, significant direct impacts could occur from vehicle use, potentially causing the death or injury of adults and young, as well as den collapse, den abandonment, and reduced reproductive success. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, and dust, which could disrupt this species. These direct and indirect operational impacts to American badger are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to American badger to less than significant.

Direct and indirect impacts to American badger during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, dens) present on, and/or adjacent to, the Project site at the time of decommissioning. Additional indirect impacts to American badger could result from decommissioning activities that cause noise and ground vibration, vehicle emissions, dust, and habitat degradation. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to American badger. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during decommissioning. Therefore, impacts to American badger would be reduced to less than significant during decommissioning of the proposed Project.

San Joaquin Kit Fox

Den surveys for San Joaquin kit fox were conducted on several dates in 2024 (Appendix D.2). During the surveys, several burrows or burrow complexes meeting the minimum size criteria were identified and examined (Appendix D.2). Of these, none were confirmed to be San Joaquin kit fox natal dens or active dens. Furthermore, no sign (for example, scat, prey remains, or digging) or evidence of recent use by San Joaquin kit fox was observed. Based on habitat modeling, the proposed project may result in the modification or loss of up to 227 acres of high-suitability San Joaquin kit fox habitat on Sites 3 and 8, and up to 7,946 acres of low- to moderate-suitability habitat on all sites and the gen-tie line route (Appendix D.2).

The BSA exhibits a mix of general agriculture, orchard, and natural habitats, generalized as saltbush scrub and alkali sink, all of which are known to be occupied or have potential for occupation by kit fox. Of these, saltbush scrub and alkali sink areas have the highest potential for kit fox to use for denning and foraging due to a high presence of prey species such as kangaroo rats, insects, rabbits and hares; however, all sites and portions of the gen-tie line route contain at least low to moderate potential for San Joaquin kit fox (Appendix D.2). General agricultural areas within the BSA consisted of cotton, alfalfa, or other row crops, occupying the largest land cover throughout the BSA. Due to the amount of maintenance necessary for this area, it is considered a low to moderate potential for kit fox to forage within these types of land covers due to a limited prey base of kangaroo rats and ground squirrels (Appendix D.2). However, these sites do contain a potential for denning along the margins due to a less active maintenance regime. Orchards, the second largest land cover within the BSA, are less likely for both denning and foraging for San Joaquin kit fox. The intensive management within orchards along with rodenticide usage limits the prey base San Joaquin kit fox are seeking.

Direct impacts to San Joaquin kit fox could occur if they are present within the Project site during construction including permanent loss of suitable habitat. Since this species is highly mobile, direct impacts on individual San Joaquin kit fox could also occur from collisions with vehicles, resulting in injury or death. If there is an active den within the proposed Project footprint during construction activities, noise and vibration from construction activities could alter the daily behaviors of individuals and affect foraging activity, or dens could be subject to collapse. Indirect impacts on individual San Joaquin kit fox could occur from construction-related disturbances, including noise, ground vibration, night lighting, and increased human presence, which could lead to habitat degradation. These direct and indirect impacts to San Joaquin kit fox are potentially significant, but would be reduced through implementation of Mitigation Measure MM 4.4-16, which requires buffers for active dens and specific avoidance and minimization measures for San Joaquin kit fox. Potential impacts to San Joaquin kit fox would be further reduced through implementation of Mitigation Measures MM 4.4-1 (On-Site Biological Monitoring), MM 4.4-2 (WEAT), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-7 (Wildlife Clearance Surveys), MM 4.4.17 (Fence Design and Site Permeability), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), and MM 4.4-20 (Lighting Design). Implementation of these mitigation measures would reduce the potential impacts to San Joaquin kit fox to less than significant during construction of the proposed Project.

Because Project construction would permanently remove suitable habitat for San Joaquin kit fox, it is unlikely that this species would occur within these areas during the operation and maintenance of the proposed Project. Since this species is highly mobile, direct impacts on individual San Joaquin kit fox could also occur during project operations and maintenance from collisions with vehicles, resulting in injury or death. If individuals are using dens on-site, significant direct impacts could occur from vehicle use, potentially causing the death or injury of adults and young, as well as den collapse, den abandonment, and reduced reproductive success. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, and dust, which could disrupt this species. These direct and indirect operational impacts to San Joaquin kit fox are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to San Joaquin kit fox to less than significant.

Direct and indirect impacts to San Joaquin kit fox during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, dens) present on, and/or adjacent to, the Project site at the time of decommissioning. Additional indirect impacts including noise and ground vibration, vehicle emissions, dust, and habitat degradation. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to San Joaquin kit fox. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during decommissioning. Therefore, impacts to San Joaquin kit fox would be reduced to less than significant during decommissioning of the proposed Project.

San Joaquin Antelope Squirrel

San Joaquin antelope squirrel was not observed during the survey efforts conducted in Sites 1, 2, 3, and 8; therefore, their potential to occur on these sites is determined to be low (Appendix D.2). There is a low to moderate potential for San Joaquin antelope squirrel to occur in Sites 5 and 6 and in portions of the gen-tie line route (Appendix D.2). This species is typically found on open, gently sloping land with shrubs, at an elevation of 200 to 1,200 feet AMSL, and requires widely scattered shrubs as well as forbs and grasses in terrain broken with gullies and washes. San Joaquin antelope squirrels live in burrows either of their own construction or dug by kangaroo rats or other small mammals.

Direct impacts to San Joaquin antelope squirrel from proposed Project construction activities may include permanent and temporary loss of habitat, injury or killing of an individual or young within an occupied burrow, or collisions from Project-related equipment. Additional suitable habitat would remain surrounding the Project site; therefore, there would be no significant impacts to San Joaquin antelope squirrel suitable habitat with development of the proposed Project. Indirect effects due to displacement of this species could also occur as a result of construction activities associated with the proposed Project. Additional indirect impacts to San Joaquin antelope squirrel could include noise and vibration disturbance causing this species to break dormancy, and exposure to herbicides, pesticides, and other toxins. The direct and indirect impacts to San Joaquin antelope

squirrel would be considered significant without mitigation. Potential impacts to San Joaquin antelope squirrel would be reduced through implementation of Mitigation Measure MM 4.4-15, which requires the avoidance of kangaroo rat burrows. Potential impacts to San Joaquin antelope squirrel would be further reduced through implementation of Mitigation Measures MM 4.4-1 (On-Site Biological Monitoring), MM 4.4-2 (WEAT), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-7 (Wildlife Clearance Surveys), MM 4.4-17 (Fence Design and Site Permeability), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), MM 4.4-20 (Lighting Design), and MM 4.4-21 (Sensitive Vegetation Avoidance and Mitigation). Additionally, implementation of Mitigation Measure MM 4.1-4, as described in Section 4.1, *Aesthetics and Visual Resources*, would reduce the disturbance to native vegetation. Implementation of these mitigation measures would reduce the potential impacts to San Joaquin antelope squirrel to less than significant during construction of the proposed Project.

Because Project construction would permanently remove suitable habitat for San Joaquin antelope squirrel, it is unlikely that this species would occur within these areas during the operation and maintenance of the proposed Project. However, if individuals are using burrows on the site for nesting, significant direct impacts could occur from vehicle use, potentially causing the death or injury of adults and young, as well as burrow collapse, nest abandonment, and reduced nesting success. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, and dust, which could disrupt the species. These direct and indirect operational impacts to San Joaquin antelope squirrel are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to San Joaquin antelope squirrel to less than significant.

Direct and indirect impacts to San Joaquin antelope squirrel during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, burrows) present on, and/or adjacent to, the Project site at the time of decommissioning. Additional indirect impacts to San Joaquin antelope squirrel could result from decommissioning activities that create noise and ground vibration, vehicle emissions, dust, and habitat degradation from introduction of non-native plants or other factors. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to San Joaquin antelope squirrel. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during decommissioning. Therefore, impacts to San Joaquin antelope squirrel would be reduced to less than significant during decommissioning of the proposed Project.

Nesting and Migratory Birds

The proposed Project has the potential to create direct construction-related impacts to nesting and migratory birds, which are in addition to the impacts to special status bird species discussed above. Impacts could involve mortality from crushing during construction or vehicle collisions with nesting birds and/or destruction of nests and eggs during vegetation clearing and grading with heavy machinery. Potential indirect impacts include interference with reproductive success and nest

abandonment in adjacent areas from increased human presence and increased noise levels (and vibration) from proposed Project construction. Reproductive and nesting impacts could occur if construction occurs during the breeding season, which is generally considered to be February 1 through August 31 in the Valley Region. These direct and indirect construction impacts to nesting and migratory birds are potentially significant, but would be reduced through implementation of Mitigation Measure MM 4.4-12, which requires pre-activity nesting bird surveys. Potential impacts to nesting and migratory bird species would be reduced through implementation of Mitigation Measures MM 4.4-1 (On-Site Biological Monitoring), MM 4.4-2 (WEAT), MM 4.4-3 (General Avoidance and Protective Measures), MM 4.4-5 (Invasive Species Control), MM 4.4-7 (Wildlife Clearance Surveys), MM 4.4-14 (Bird Flight Diverters), MM 4.4-18 (Hazardous Waste Cleanup), MM 4.4-19 (Delineation of Property Boundaries), MM 4.4-20 (Lighting Design), MM 4.4-21 (Sensitive Vegetation Avoidance and Mitigation), MM 4.4-22 (Aquatic Resources Delineation Report), and MM 4.4-23 (Aquatic Resources Mitigation). Additionally, implementation of Mitigation Measure MM 4.1-4, as described in Section 4.1, *Aesthetics and Visual Resources*, would reduce the disturbance to native vegetation. Implementation of these mitigation measures would reduce the potential impacts to nesting and migratory birds to less than significant during construction of the proposed Project.

Because Project construction would permanently remove suitable habitat for nesting and migratory birds, it is unlikely that they would occur within these areas during the operation and maintenance of the proposed Project. However, if individuals are flying, foraging, or nesting on-site during project operations and maintenance, significant direct impacts could result in mortality from crushing during construction or vehicle collisions with nesting birds and/or destruction of nests and eggs during vegetation management activities. Additionally, indirect impacts are possible from vehicle-related noise, ground vibration, emissions, and dust, which could disrupt the species.

Direct and indirect impacts to avian species may occur during project operation and maintenance through individual collisions with project facilities and equipment including transmission wires, fencing, array structures, and heavy equipment. Such risks are commonplace with most human development activities. Factors that may determine the risk of avian collisions with man-made structures include the size, height, and specific attributes of the structures (guy wires and lighting/light attraction). Other factors include the siting in high-risk areas, frequency of inclement weather, type of development, and the species at potential risk. Such collisions can result in injury or mortality of avian species from electrocution, including in the case of power lines. Collisions with project facilities and equipment would be considered a potentially significant impact under CEQA. Potential indirect impacts to migratory bird species from the operations and maintenance phase of the project may occur through “lake effect” from utility-scale solar panel arrays. The lake effect refers to the perception of solar panels as water by birds. Solar panels are both reflective and have a strong polarization signature, which are elements thought to mimic water or related suitable habitat. As a result, some have theorized that solar panels can attract bird species that mistake the panels for bodies of water, potentially leading to increased collisions, stranding within site fencing once they land, or other forms of distress. The lake effect is at present a hypothesis that remains unsupported by empirical research. The cause of avian injuries and fatalities at commercial-scale solar projects are being evaluated by the USFWS, CDFW, and others. No formal studies have been

conducted at utility-scale solar projects that establish a clear causal link between such projects and the types of avian mortality and injury documented on existing solar project sites.

These direct and indirect operational impacts to nesting and migratory birds are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. In addition, Mitigation Measure 4.1-5 would require all lighting to be aimed downward to minimize stray light that might attract or confuse night-flying birds. Mitigation Measure MM 4.1-6 and MM 4.1-7 would be implemented to ensure solar panels and hardware are designed to minimize glare and spectral highlighting as described in Section 4.1, *Aesthetics*. The project proponent would also be required to implement Mitigation Measure MM 4.4-24, which requires power lines to be installed per APLIC standards, reducing the likelihood of collision and/or electrocution from power lines. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to nesting and migratory birds to less than significant.

Direct and indirect impacts to nesting and migratory birds during Project decommissioning would be similar to those that would occur during construction, but would depend on the resources (for example, suitable nesting/foraging habitat) present on, and/or adjacent to, the Project site at the time of decommissioning. Additional direct impacts may occur if removal of project structures (for example, transmission poles) contain active nests. Removal of project structures supporting nests or physical removal of nests would be considered a significant impact. Temporary indirect impacts from decommissioning activities include the disturbance of foraging individuals, reducing the suitability of foraging habitat, and causing nest failure during breeding season from noise, dust, and other disturbances, which would result in a substantial adverse impact on special status birds. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to special status birds. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during decommissioning. Therefore, impacts to nesting and migratory birds would be reduced to less than significant during decommissioning of the proposed Project.

PG&E Midway Substation Upgrades

The proposed Project includes enlarging the Midway Substation's 500-kilovolt (kV) yard within the Midway Substation property boundaries. The Midway Substation site comprises approximately 255 acres of which approximately 38.6 acres will be subject to new construction activities as part of the proposed Project. Pacific Gas Electric (PG&E) may install two four-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest of the Midway Substation property. Other activities include: installing up to nine, 67.5 cubic feet underground substructure vaults along the conduit trenches; removing an existing precast security wall at the northwest side of the Midway Substation and replacing it with a new 12-foot wall; grading of the connection area; installing approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker; equipment foundations and concrete trenches;

equipment cabinets; bus structures; communication lines; conduits; pull boxes; and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the Point of Change of Ownership for the proposed Project. Up to four approximately 175-foot-tall lattice steel towers or tubular steel poles would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads. For a detailed description of the Midway Substation upgrades see Section 3.0, *Project Description.*

The proposed Project has the potential to impact special-status plants and wildlife within the Midway Substation site. The analysis presented in this section is based on reconnaissance-level surveys, vegetation mapping, aquatic resources jurisdictional delineation, and a focused survey for special status plants of the Midway Substation site provided in the *Biological Resources Habitat Assessment Buttonbush Solar and Storage Project—Midway Substation* (Dudek 2024) located in Appendix D.2 of this Draft EIR.

Special-Status Plants

Heartscale

Heartscale were observed in the Midway Substation site during focused surveys conducted in 2024 (Appendix D.5). Based on existing vegetation mapping, the development on the Midway Substation site would result in the permanent loss of 86 acres of suitable grassland habitat (Appendix D.5).

Direct and indirect impacts to heartscale would be similar to, or the same as described above, during proposed Project construction, operation and maintenance, and decommissioning activities which would occur elsewhere on the Project site. The direct and indirect impacts to heartscale would be considered significant without mitigation. Therefore, to avoid potential impacts to heartscale, PG&E should implement the mitigation measures described above, during proposed Project construction, operation and maintenance, and decommissioning. Finally, PG&E has adopted Best Management Practices (BMPs) (Appendix M) that apply to all PG&E construction projects..

Special-Status Wildlife

A total of six special-status wildlife species have the potential to occur within the Midway Substation site: blunt-nosed leopard lizard, burrowing owl, Swainson's hawk, loggerhead shrike, Tipton kangaroo rat, and San Joaquin kit fox. Proposed Project construction, operation and maintenance and decommissioning of the Midway Station parcels have the potential to impact these species, as described below.

Blunt-Nosed Leopard Lizard

Blunt-nose leopard lizard were not observed during the biological reconnaissance survey in 2024, but has moderate potential to occur in the Midway Substation site (Appendix D.5). The Midway Substation site contains suitable, yet sparse vegetated areas including grasslands for this species. Based on existing vegetation mapping, the proposed Project would result in the permanent loss of

86 acres of suitable grassland habitat (Appendix D.5). Small mammal burrows were observed in the Midway Substation site that may be used by blunt-nose leopard lizard for burrowing.

Direct and indirect impacts to blunt-nosed leopard lizard would be similar to, or the same as, those described above, during proposed Project construction, operation and maintenance, and decommissioning. The direct and indirect impacts to blunt-nosed leopard lizard would be considered significant without mitigation. Therefore, to avoid potential impacts to blunt-nosed leopard lizard, PG&E should implement the mitigation measures described above, during proposed Project construction, operation and maintenance, and decommissioning. Finally, PG&E has adopted BMPs (Appendix M) that apply to all PG&E construction projects.

Burrowing Owl

Burrowing owl were not observed during the biological reconnaissance survey in 2024, but has moderate potential to nest in the Midway Substation site (Appendix D.5). The Midway Substation site contains suitable, yet sparse vegetated areas including grasslands for this species. Based on existing vegetation mapping, the proposed Project would result in the permanent loss of 86 acres of suitable grassland habitat (Appendix D.5).No burrows suitable for nesting burrowing owl were observed in the Midway Substation site. However, burrowing owls have the potential to utilize partially-developed habitats and human-made structures.

Direct and indirect impacts to burrowing owl would be similar to, or the same as, those described above, during proposed Project construction, operation and maintenance, and decommissioning. The direct and indirect impacts to burrowing owl would be considered significant without mitigation. Therefore, to avoid potential impacts to burrowing owl, PG&E should implement the mitigation measures described above, during proposed Project construction, operation and maintenance, and decommissioning. Finally, PG&E has adopted BMPs (Appendix M) that apply to all PG&E construction projects, which include BMPs that would reduce impacts to burrowing owl.

Swainson’s Hawk

No Swainson’s hawk or nests were observed during the biological reconnaissance survey in 2024, but has moderate potential to nest in the Midway Substation site (Appendix D.5). The Midway Substation site contains one large tamarisk tree with potential for nesting. Additionally, there is potential for Swainson’s hawk to forage within the grassland habitat. Based on existing vegetation mapping, the proposed Project would result in the permanent loss of 86 acres of suitable grassland habitat for foraging (Appendix D.5).

Direct and indirect impacts to Swainson’s hawk would be similar to, or the same as, those described above, during proposed Project construction, operation and maintenance, and decommissioning. The direct and indirect impacts to Swainson’s hawk would be considered significant without mitigation. Therefore, to avoid potential impacts to Swainson’s hawk, PG&E should implement the mitigation measures described above, during proposed Project construction, operation and maintenance, and decommissioning. Finally, PG&E has adopted BMPs (Appendix M) that apply to all PG&E construction projects, which would reduce biological impacts to Swainson’s hawk .

Loggerhead Shrike

Loggerhead shrike were observed foraging during the biological reconnaissance survey in 2024. Therefore, this species is expected to be present in the Midway Substation site (Appendix D.5). Based on existing vegetation mapping, the proposed Project would result in the permanent loss of 86 acres of suitable grassland habitat that could be used for foraging by loggerhead shrike (Appendix D.5). Additionally, the Midway Substation site contains one large tamarisk tree with potential for nesting. Additionally, there is potential for loggerhead shrike to forage within the grassland habitat. Based on existing vegetation mapping, the proposed Project would result in the permanent loss of 86 acres of suitable grassland habitat for foraging (Appendix D.5).

Direct and indirect impacts on loggerhead shrike would be similar to, or the same as, those described above, during proposed Project construction, operation and maintenance, and decommissioning. The direct and indirect impacts to loggerhead shrike would be considered significant without mitigation. Therefore, to avoid potential impacts to loggerhead shrike, PG&E should implement the mitigation measures described above, during proposed Project construction, operation and maintenance, and decommissioning. Finally, PG&E has adopted BMPs (Appendix M) that apply to all PG&E construction projects, which include BMPs that would reduce impacts to loggerhead shrike.

Tipton Kangaroo Rat

Tipton kangaroo rat were not observed during the biological reconnaissance survey in 2024, but have moderate potential to occur in the Midway Substation site (Appendix D.5). Small mammal burrows were observed that could be used for burrowing and the Midway Substation site contains suitable grassland habitat for this species. Based on existing vegetation mapping, the proposed Project would result in the permanent loss of 86 acres of suitable grassland habitat that could be used by Tipton kangaroo rat (Appendix D.5).

Direct and indirect impacts on Tipton kangaroo rat would be similar to, or the same as, those described above, during proposed Project construction, operation and maintenance, and decommissioning. The direct and indirect impacts to Tipton kangaroo rat would be considered significant without mitigation. Therefore, to avoid potential impacts to Tipton kangaroo rat, PG&E should implement the mitigation measures described above, during proposed Project construction, operation and maintenance, and decommissioning. Finally, PG&E has adopted BMPs (Appendix M) that apply to all PG&E construction projects which would reduce impacts to Tipton kangaroo rat.

San Joaquin Kit Fox

San Joaquin kit fox were not observed during the biological reconnaissance survey in 2024, but has moderate potential to occur in the Midway Substation site (Appendix D.5). Because San Joaquin kit fox is highly mobile, individuals may move through the Midway Substation site to forage.

Direct and indirect impacts to San Joaquin kit fox would be similar to, or the same as, those described above, during proposed Project construction, operation and maintenance, and decommissioning. The direct and indirect impacts to San Joaquin kit fox would be considered

significant without mitigation. Therefore, to avoid potential impacts to San Joaquin kit fox, PG&E should implement the mitigation measures described above, during proposed Project construction, operation and maintenance, and decommissioning. Finally, PG&E has adopted BMPs (Appendix M) that apply to all PG&E construction projects, which would reduce impacts to San Joaquin kit fox.

Summary

As described above, the proposed Project has the potential to create significant impacts to special status species including, but not limited to, nesting and migratory bird species, which can be reduced with implementation of the mitigation measures provided below. Avoidance, minimization, and mitigation measures are designed to reduce or eliminate impacts to special-status species during all phases of the proposed Project. Detailed specific measures are set forth below for each special-status species, as well as for all nesting and migratory bird species, which may occur on the Project site.

Mitigation Measures

MM 4.4-1: Prior to the issuance of grading or building permits, and prior to decommissioning, the project operator shall retain a Lead Biologist(s) who meets the qualifications of an Authorized Biologist as defined by U.S. Fish and Wildlife Service to oversee compliance with protection measures for all listed and other special-status species that may be affected by the construction, operation, and decommissioning of the project. The contact information for the Lead Biologist(s) shall be provided in writing to the Planning and Natural Resources Department.

The following measures pertain to the Lead Biologist(s):

a. The Lead Biologist(s), or their designee, shall be on the project site during all construction activities which include, but are not limited to, installation of perimeter fencing, clearing of vegetation, grading activities, site buildout, and decommissioning.

b. The Lead Biologist(s) or their designee shall have the right to halt all activities that are in violation of the special-status species protection measures, as well as any regulatory permits from the U.S. Fish and Wildlife Service and/or the California Department of Fish and Wildlife, if applicable. Work shall proceed only after hazards to special-status species are removed and the species is no longer at risk.

MM 4.4-2: Prior to the issuance of grading or building permits, or decommissioning of the site, the Lead Biologist shall develop a Worker Environmental Awareness Training Program containing life history and identification information of special-status wildlife and plant species with potential to occur on site. The Worker Environmental Awareness Training Program shall review responsibilities for all on-site personnel including trash control, checking under and around vehicles and heavy equipment before starting, scanning for wildlife resources, contacting the

Lead Biologist in the unanticipated instance of encountering special status wildlife species, and prohibition of pets and firearms. All on-site personnel shall be required to attend a worker environmental training. A sticker shall be placed on hard hats, indicating that the worker has completed the Worker Environmental Awareness Training. Copies of all prepared materials including, but not limited to, PowerPoint presentations, videos, information handouts and signed acknowledgement from each worker who has attended the required training shall be provided to the Planning and Natural Resources Department.

MM 4.4-3: During construction and decommissioning of the Project site, the Project proponent and/or contractor(s) shall implement the following general avoidance and protective measures:

a. Immediately prior to conducting vegetation clearing or similar activities, the Lead Biologist or their designee shall perform a pre-construction visual survey of the area to ensure that no special-status species are present. Daily reports of these inspections shall be retained by the Lead Biologist and provided to the Kern County Planning and Natural Resources Department, U.S. Fish and Wildlife Service, or California Department Fish and Wildlife upon request.

b. Within the vicinity of any construction activities, sensitive biological resources (i.e., special-status species, jurisdictional drainages, nesting birds, etc.) shall be delineated with stakes and/or flagging.

c. Access roads that are planned for use during construction activities shall not extend beyond the planned impact area, which area includes all previously disturbed lands and any location within the project fence line not delineated for avoidance of sensitive biological resources. Where new access routes are required, the route will be clearly marked prior to construction.

d. The project proponent/operator shall minimize the areas of disturbance. Parking areas, new roads, staging, storage, excavation, and disposal site locations shall be confined to the smallest areas possible. These areas shall be demarcated, and disturbance activities, vehicles, and equipment shall be confined to these areas.

e. Any spoils shall be stockpiled in disturbed areas that lack native vegetation to the maximum extent practicable. Spoils that have been stockpiled and inactive for more than 24 hours shall be inspected by a qualified biologist for signs of special-status wildlife before moving or disturbing.

f. To prevent inadvertent entrapment of San Joaquin kit foxes, American badgers, or other animals during construction, all excavated steep-walled holes or trenches more than 2 feet deep shall be covered with plywood or similar materials at the close of each working day. If holes or trenches cannot be covered, one or more escape ramps constructed of earthen fill or wooden planks, no less than 12 inches wide and secured at the top, shall be placed a

minimum of every 100 feet within the open trench. Covered and non-covered holes or trenches shall be thoroughly inspected for trapped animals by a qualified biologist at the beginning and end of each working day. Immediately before such holes or trenches are filled, they shall again be thoroughly inspected by trained Staff approved by the Lead Biologist. If non-listed trapped animals are observed, escape ramps or structures shall be installed immediately to allow for their escape. If a listed species is trapped, escape ramps or structures shall be installed immediately to allow for their escape and the Lead Biologist shall immediately confer with the U.S. Fish and Wildlife Service and/or California Department of Fish and Wildlife.

g. All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at the site for more than 24 hours and without endcaps shall be thoroughly inspected by a qualified biologist prior to being moved or capped. If a listed wildlife species is discovered inside a pipe, that section of pipe shall not be moved until a qualified biologist has been consulted and the animal has either moved from the structure on its own accord or until the animal has been captured and relocated in conformance with appropriate wildlife agency guidelines.

h. No vehicle or equipment parked on the project site shall be moved prior to inspecting the ground beneath the vehicle or equipment for the presence of listed wildlife species. If present, the animal shall be left to move on its own.

i. A speed limit of 15 miles per hour shall be enforced within the limits of the project site. If night work occurs on the project site, the speed limit will be 10 miles per hour.

j. Fueling of equipment shall take place within existing roads or disturbed areas. No refueling within or adjacent to drainages (within 150 feet) shall be permitted. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary.

k. Trash and food items shall be contained in closed containers to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs.

l. Workers shall be prohibited from bringing pets and firearms to the project site and from feeding wildlife.

m. Intentional killing or collection of any listed plant or wildlife species shall be prohibited.

n. Herbicides that may be used as vegetation control measures in project areas shall be restricted. All uses of such herbicidal compounds shall observe label and other restrictions mandated by the U.S Environmental Protection Agency, California Department of Food and Agriculture, and state/federal legislation as well as additional Project-related restrictions deemed necessary by the U.S.

Fish and Wildlife Service or CDFW. No rodenticides shall be used on the project site.

MM 4.4-4: Prior to the start of ground disturbance activities or decommissioning of the main project site, a qualified biologist knowledgeable on the identification of rare plant species shall conduct a pre-construction plant survey of areas of proposed disturbance within the main project site and a 100-foot buffer (where legally accessible) timed during the appropriate blooming period of the target species (March to May for Kern mallow, and February to April for alkali-sink goldfields) prior to start of construction activities in this area to determine if any special status plant species are present. If special-status plants are not identified during the survey(s), no further action is required. If special-status plants are identified on-site, their locations shall be mapped and Ecologically Sensitive Area (ESA) fencing should be established at a 50-foot radius around these individuals to ensure that they are not destroyed during project construction activities. Pursuant to Section 1913(c) of the California Fish and Game Code, if project activities cannot avoid direct impacts to special-status plants, CDFW shall be notified and provided the opportunity to salvage any of these plants that would be affected. The CDFW may enter into agreement with the project proponent to retain a qualified entity for the relocation of sensitive plants to an approved location. Any salvage would be undertaken in accordance with a salvage plan to be developed in consultation with CDFW. The plan would include methods for transplanting and watering (if appropriate), success criteria for salvaged plants, monitoring the health and survivorship of salvaged plants during at least 5 years following salvage, and contingency measures if plant survivorship requirements are not satisfied.

Prior to initiating ground-disturbing activities during the construction and decommissioning phases of the Project in areas mapped as occupied by Kern mallow, after seeds have set (usually by May 31) remove and stockpile the uppermost 3-6 inches of topsoil. The stockpiled material shall be spread in the affected area, the closest comparable area, or the closest suitable habitat outside the footprint of roads, buildings, and structures prior to the next blooming season. During the operational phase of the Project, vegetation and/or fuel management activities within Kern mallow occupied habitat shall be undertaken subsequent to after seeds of Kern mallow have set (usually by May 31). The project proponent shall mitigate for impacted occupied Kern mallow habitat. Compensatory mitigation land shall be provided at a ratio of 1:1 acre on-site or at a nearby location with comparable habitat value. Individual Kern mallow plants and/or seeds will be salvaged from the project site and translocated to the compensatory mitigation lands if authorized by appropriate wildlife agency. Final total compensation land acres will be based on final site plan design and confirmation through the required pre-construction biological surveys. Mitigation land may be nested with other lands established as compensatory mitigation for other resources, provided it meets the necessary biological requirements and as determined by appropriate wildlife agency. Prior to issuance of any building or grading permit, the project proponent

shall (i) complete acquisition of such compensatory mitigation lands or equivalent mitigation credits applicable to the portion of the project covered by said grading or building permit; or (ii) provide a bond, letter of credit or other form of financial assurance acceptable to the County in an equivalent amount and acquire such lands or credits within eighteen (18) months of issuance of said building or grading permit.

MM 4.4-5: Prior to initial ground disturbance, the applicant shall develop a plan to minimize the spread of invasive species and reduce dust that could spread invasive species. The plan shall be approved by the Kern County Planning and Natural Resources Department. The plan shall include methods and a plan to minimize introduction and spread of invasive and non-native plant species. The spread of invasive species and their seeds shall be avoided and controlled, through the use of watering or soil stabilizer(s) during construction. Watering and soil stabilizer(s) shall be used in areas under construction (i.e. active grading, trenching, etc.) or unpaved or non-gravel roadways (dirt) being used to transport or move materials and machinery within the project site. In addition, construction entrances and exits shall be stabilized (using rip-rap and/or metal grates) to minimize off-site transport of materials that may contain invasive species or seeds.

If invasive species are located during construction, they shall be removed from the project site during construction. All plants shall be removed from the site and disposed of in a manner that prohibits their spread on-and off-site. Areas where invasive plants are removed and cleared during construction will not be used for project activities or needed for access (i.e., roadways); and will be revegetated with an application of a native seed mix prior to or during seasonal rains to promote passive restoration of the area to pre-project conditions. Prior to removal and destruction of invasive plants or reseeding temporary ground disturbance areas, the qualified biologist will review the removal and destruction plan and seeding palette to ensure that no seeding of invasive plant species, as identified in the most recent version of the California Invasive Plant Inventory for the region, will occur.

During Operations, an annual weed and invasive species control program shall be implemented within the project site.

MM 4.4-6: To reduce any indirect impacts to special-status plants that may be in the project footprint, BMPs shall be implemented to control dust pollution, prevent discharge of potentially harmful chemicals, and prevent changes in hydrology. BMPs shall be consistent with the California Stormwater Quality Association (CASQA) 2023 Construction BMP Handbook, or most current version of this document, and shall include, but not be limited to, installing erosion and sedimentation control devices, applying water to control dust, placing drip pans under equipment when not in use, refueling in designated areas, and appropriate disposal of concrete debris and washout, among other practices.

MM 4.4-7: Within 14 days of the initiation of ground disturbance or vegetation clearing on, and/or adjacent to project areas, a preconstruction survey shall be conducted by a qualified biologist, knowledgeable in the identification of all special-status plant and wildlife species with the potential to occur on site. Surveys shall be appropriate for detecting potentially occurring species, such as but not limited to American badger, San Joaquin kit fox, San Joaquin antelope squirrel, blunt-nosed leopard lizard, Bakersfield legless lizard, California glossy snake, coast horned lizard, and San Joaquin coachwhip. Other special-status species shall be avoided during all phases of the proposed project in accordance with the specific avoidance measures listed below. If western spadefoot toad becomes federally listed, the relocation would require an ITP. Surveys need not be conducted in all areas simultaneously, as long as they are conducted within 14 days of the initiation of ground disturbance or vegetation clearing in each area individually. If special-status species are detected, appropriate buffers shall be established, as necessary and as appropriate for the species, unless it is not feasible to avoid the species. If non-listed special-status wildlife species are detected, they shall be captured and relocated to suitable habitat nearby where they are safe from project activities. Surveys and relocation of these species shall be conducted only by the qualified project biologist.

MM 4.4-8: A pre-construction survey for Crotch's bumble bee shall occur within the project areas where suitable habitat has been identified during the primary flight period for workers and males (March 1 through June 30) prior to the start of project activities. The survey shall ensure that no nests for Crotch's bumble bee are located within the project areas. Crotch's bumble bee is a habitat generalist, ground-nesting bee. Surveys and other relevant recommendations shall be in accordance with the most recent protocol available at the time of the surveys.

If nest resources occupied by Crotch's bumble bee are detected within the project areas, no ground disturbing activities shall occur within 100 feet of the occupied nest resources, or as determined by a qualified biologist through evaluation of topographic features or distribution of floral resources. The nest resources shall be avoided for the duration of the Crotch's bumble bee nesting period (February 1 through October 31). Outside of the nesting season, it is assumed that no live individuals would be present within the nest, because the daughter queens (gynes) usually leave by September, and all other individuals (original queen, workers, males) die. The gynes are highly mobile and can independently disperse to outside the project footprint to the proposed open space or other suitable areas beyond that have suitable hibernaculum resources. Because construction will have occurred in the area outside the occupied nesting resources, no suitable habitat will be present in the impact area, and it is assumed that new queens will disperse to habitat outside the project areas.

If take cannot be avoided, take authorization prior to any ground disturbing activities is warranted. Take authorization would occur through issuance of an ITP by CDFW, pursuant to Fish and Game Code section 2081(b).

MM 4.4-9: Prior to the initiation of ground disturbing activities, protocol-level surveys for federally listed large branchiopods in suitable habitat (Sites 2, 3, and 8), shall be conducted in accordance with guidance outlined in the 2017 U.S. Fish and Wildlife Service Survey Guidelines for Listed Large Branchiopods (USFWS 2017). Surveys shall include mapping areas of suitable habitat in the project site and conducting both wet season sampling and dry season sampling. Survey notification shall be submitted to the regional USFWS office for survey approval.

Wet season sampling shall begin with the onset of the rainy season and shall include inundation checks prior to full survey efforts. Once potential habitat has been inundated for the appropriate time, surveys shall commence in all appropriate habitat on-site every 10 days until it dries or a minimum of 90 consecutive days of inundation has occurred, whichever occurs first. Sampling shall be reinitiated within 10 days of an individual habitat drying and inundating during the same wet season. Dry season surveys entail soil sample collection and processing from individual habitat within 90 days of completion of surveys. If surveys are negative, nothing further is required.

If surveys are positive, the full extent of listed branchiopod occurrence within the survey area shall be recorded using GPS. The location of occupied features shall be mapped and the number of individuals for each occurrence documented. The outer extent of each occupied listed branchiopod feature shall be flagged at the time of the survey. If full avoidance is infeasible then consultation with USFWS shall occur, and/or take authorization may be obtained from USFWS through Section 7 consultation, if applicable, or a Section 10 habitat conservation plan for impacts to federally listed branchiopods.

Avoidance, minimization, and mitigation measures shall be implemented and shall include, at a minimum, the following:

a. Establishment of Environmentally Sensitive Areas (ESAs). Prior to the start of Project activities, a qualified biologist shall establish ESAs to protect and avoid occupied federally listed branchiopod habitat area that occur outside of the Project disturbance areas and within 250 feet of project disturbance areas. The locations of ESAs shall be clearly delineated through brightly colored fencing or other highly visible means and shall include a designated avoidance buffer developed in consultation with USFWS to prevent construction from affecting the vernal pool and its associated watershed. Any employee responsible for any phase of the proposed project shall be directed not to encroach beyond the limits of project activities.

b. Monitoring. A qualified biologist shall be present during project activities within 250 feet of occupied or assumed occupied vernal pool habitat(s) to conduct daily monitoring of the ESAs that protect occupied federally listed branchiopod habitat. The monitor shall have the authority to stop project

activities in the vicinity (within 250 feet) of an ESA if it is determined as a result of monitoring that corrective actions are necessary to avoid and protect the ESA.

c. BMPs. All fueling and maintenance of vehicles and other equipment and staging areas shall occur at least 250 feet from vernal pool or aquatic habitat.

d. Compensatory Mitigation. If avoidance is not feasible, the project shall abide by all conditions imposed by USFWS resulting from the consultation process. Such conditions may include preparation of a mitigation monitoring and management plan and/or creation/restoration/enhancement of suitable vernal pool habitat. Alternatively, impacts to occupied listed branchiopod habitat may be mitigated by purchasing mitigation credits at a minimum replacement value of 1:1 for temporary and permanent impacts using a USFWS-approved mitigation bank for listed branchiopods.

MM 4.4-10: Prior to the initiation of ground disturbing activities, a pre-construction survey to determine if potential breeding resources occur for western spadefoot (for example, temporary puddles, stock ponds, slow-moving water courses) shall be performed prior to the rainy season before start of project activities. The following requirements (Items a through e) shall be implemented if the project area or its immediate vicinity is determined to contain suitable habitat for the western spadefoot. If no potential habitat for western spadefoot is found during the survey, no further mitigation is required.

a. If potentially suitable breeding areas for western spadefoot are identified, a 1,500-foot survey buffer, by locked construction fencing appropriate for amphibian exclusion, shall be installed around the project areas and breeding area. A pre-activity daytime and nighttime pond check and pre-activity nighttime surveys for western spadefoot shall be conducted the winter prior to ground disturbing activities within the project areas. Surveys for spadefoot will begin during or the night after the first three significant rain ($\geq$ 0.25 inches) events, as early as October or November, though peak breeding season typically occurs February through April. Surveys for spadefoot eggs and tadpoles can be done during the day and do not require nighttime surveys.

b. Daytime surveys will be conducted by walking slowly along pool margins visually searching for (but not disturbing) eggs, larvae, and juveniles. Spadefoot may breed in a variety of ephemeral and perennial habitats from side pools of large rivers to road ruts.

c. Nighttime surveys will occur between one hour after dusk and midnight and should be timed either during a rain event or the night after a rain event. Nighttime surveys (assuming eggs, larvae, and/or juveniles have not been detected) will be conducted by walking slowly and carefully along water features and between and through suspected breeding and upland habitats.

d. Transect-based nocturnal eyeshine surveys shall be conducted for upland nighttime surveys. These are performed through adjacent upland habitat within 1,500 feet of breeding locations or known occupied areas, using an approximate 30-meter transect width (less if there is denser grass and/or shrubs). Surveys must be conducted as silently as possible, because talking or other human-generated noises may cause western spadefoots to stop calling, hide, or leave the area. The surveyor shall rotate 360 degrees approximately every 200–300 meters (within the limits of their headlamp) and look backward along their transect with more frequency as the toads may watch the surveyor as they pass. Strong headlights or flashlights held at surveyor eye level should be used to visually locate and identify adult western spadefoots, and flash photography may be used to document sightings of solitary individuals.

e. If western spadefoot is detected during surveys, defined in Item a through d, within the Project footprint, then biologists shall collect western spadefoot adults for relocation. Adults shall be relocated outside the Project footprint to portions of open space that have suitable breeding habitat and appropriate upland habitat, are of suitable size to support the translocated individuals, and contain few or no western spadefoot individuals. A relocation plan shall be prepared and approved by the wildlife agencies and lead agency prior to implementation. The plan shall include details regarding specifically how the western spadefoot will be captured, held, moved, and released; where they will be released; what data will be collected regarding the released individuals; timing; reporting; and other important factors. Relocation of western spadefoot shall follow the latest amphibian handling guidelines provided by the USGS. It is advisable to also capture and release other native herpetofauna that are found. Implementation of this may require a Memorandum of Understanding and/or Scientific Collecting Permit from CDFW and, if listed under the ESA, a Section 10 take permit from USFWS.

f. If no western spadefoot are detected as a result of the surveys, then the fenced buffer may be removed.

MM 4.4-11: Within one calendar year of the start of ground disturbance activities, a qualified biologist shall conduct protocol level surveys for the Blunt-Nosed Leopard Lizard (BNLL) to determine the potential for occupancy by BNLL. The required surveys shall be provided to the Kern County Planning and Natural Resources Department, the U.S Fish and Wildlife Service and the California Department of Fish and Wildlife. If no sign of the species is identified, no further action is required. If the species is identified on-site, the project proponent shall confer with the appropriate wildlife agency.

Surveys may be conducted in areas of disturbance and needed buffers as work progresses or in stages as needed during the construction phase. If surveys indicate that BNLL and appropriate burrow habitat are absent, the construction area(s) can be fenced using materials and installing temporary wildlife exclusion fencing in

compliance with agency specifications to prevent potential occupancy of BNLL in active construction work areas. If BNLL are found within the survey areas, measures to protect the species shall include appropriate signage, monitoring by approved qualified biologists and consultation with the USFWS and the CDFW to develop a BNLL avoidance plan. If burrows are found to be occupied, measures for avoidance and minimization of impact to BNLL shall be written in compliance with recommendations provided during agency consultations and shall contain project specific details. Project actions in areas where BNLL are located shall be restricted to the species active period (April to early November) to ensure that no aestivating BNLL in burrows are impacted while in their burrows. In conjunction with CDFW or other involved agencies, sensitive areas shall be established and protected with appropriate signage. If take cannot be avoided, the project proponent shall confer with the appropriate wildlife agency and obtain an Incidental Take Permit pursuant to both Section 10(a)(1) of the federal Endangered Species Act and SB 147.

MM 4.4-12: Pre-construction surveys shall be conducted by a qualified biologist of all potential nesting habitat within the project site no more than 14 days prior to commencement of ground disturbing activities within the project site during the nesting bird season (i.e., February 1 to September 15). If construction is scheduled to commence during the non-nesting season, no pre-construction surveys or additional measures are required. Surveys need not be conducted for all areas of suitable habitat at one time; they may be phased so that surveys occur within 14 days prior to that portion of the project site disturbed. Surveys shall cover a sufficient area around the work site to identify nests and determine their status. A sufficient area means any area potentially affected by a project. In addition to direct impacts (i.e., nest destruction), noise, vibration, odors, and movement of workers or equipment could also affect nests. Prior to initiation of construction activities, a qualified biologist shall conduct a survey to establish a behavioral baseline of all identified nests and confirm site conditions have not changed. If construction is scheduled to commence during the non-nesting season for any nesting birds (i.e., September 16 to January 31), no preconstruction surveys or additional measures are required.

The surveying biologist must be qualified to determine the status and stage of nesting by migratory birds and all locally breeding raptor species without causing intrusive disturbance.

The raptor survey shall focus on potential nest sites (e.g., large trees, windrows) within a 0.5-mile buffer around the project site.

A tricolored blackbird nest colony survey shall occur within suitable habitat. Tricolored blackbird nesting season in the San Joaquin Valley is March to mid-June, though most colonies begin nesting in late March. Suitable habitat shall be assessed in March with three follow-up surveys occurring April through June, comprising a total of four surveys of each location. The Swainson's hawk nest

survey shall focus on potential nest sites within a 0.5-mile buffer around the project site and follow the 2000 Swainson's hawk protocol for the Central Valley (SWHA Technical Advisory Committee [TAC] 2000).

Surveys shall encompass the project site plus the potential nest buffers as listed above, where access has been granted.

If active nests are found, a suitable no-disturbance buffer (e.g., 500 feet for common raptors; 0.5 miles for Swainson's hawk; 250 feet for non-raptor species shall be established around active nests until a qualified biologist has determined that the nest is no longer active (e.g., the nestlings have fledged and are no longer reliant on the nest). For non-listed species, encroachment into the avoidance buffer may occur at the discretion of a qualified biologist provided the biologists has monitored the nest prior to construction to establish a behavioral baseline and continues to monitor the nest during construction to ensure the nest is not negatively affected. Buffer distances can also be adjusted if there is a compelling biological reason such as when a construction area would be concealed from a nest site by topography or vegetation as determined by a qualified biologist. For State-listed species, consultation with CDFW shall occur prior to encroachment into the aforementioned buffers.

Unavoidable impacts to occupied tricolored blackbird habitat shall be compensated in conjunction with mitigation for the loss of RWQCB/CDFW jurisdictional aquatic resources, as outlined in Mitigation Measure MM 4.4-23 below.

If an active Swainson's hawk nest is detected and a 0.5-mile no disturbance buffer is not feasible, CDFW will be consulted to discuss how to implement the project and avoid take. If take cannot be avoided consultation to receive an ITP for SWHA shall be performed.

MM 4.4-13: Burrowing Owl Burrow Setbacks. Occupied burrowing owl burrows shall not be disturbed during the species nesting season (February 1 through August 31). The following distances shall be maintained between all disturbance areas and burrowing owl nesting sites.

Time of Year		
April 1–Aug 15	Aug 16–Oct 15	Oct 16–Mar 31
Project Impact Level		
Low		
656 feet (200 meters)	656 feet (200 meters)	164 feet (50 meters)
Medium		
1,640 feet (500 meters)	656 feet (200 meters)	328 feet (100 meters)
High		
1,640 feet (500 meters)	1,640 feet (500 meters)	1,640 feet (500 meters)

Burrowing owls present in proposed disturbance areas or within 500 feet or as specified under an ITP (as identified during pre-construction surveys) outside of the breeding season (between September 1 and January 31) may be moved away from the disturbance area using passive relocation techniques approved by CDFW. Passive relocation techniques in the CDFW's *Staff Report on Burrowing Owl Mitigation Guidelines* (CDFG 2012) include installing one-way doors in burrow entrances for 48 hours, to ensure the owl(s) have left the burrow, daily monitoring during the passive relocation period, and collapsing existing burrows to prevent reoccupation. A minimum of one or more weeks will be required to relocate the owl(s) and allow for acclimatization to alternate off-site burrows. Prior to burrow exclusion or eviction, the Project proponent shall prepare a burrowing owl management plan for CDFW's review and approval. Destruction of burrows shall occur only pursuant to a CDFW-approved management plan for the species; burrow excavation shall be conducted by hand whenever possible.

As an alternative to passive relocation, occupied burrows identified off-site within 500 feet of Project activities may be buffered with hay bales, fencing (for example, sheltering in place), or as directed by the qualified biologist (and CDFW if the species remains protected under CESA), to avoid disturbance of burrows.

MM 4.4-14: If guy wires are required for any project infrastructure, such use shall be minimized to the extent possible. Any guy wires shall be installed with bird flight diverters at no less than 15-foot spacing to reduce the potential for collision with flying birds.

MM 4.4-15: For any construction or decommissioning of solar panel fields within the project footprint, access roads, and tower locations for the generation tie (gen-tie) line routes in non-cultivated habitat, undeveloped land types shall be surveyed prior to ground disturbing activities to determine measures to avoid suitable kangaroo rat burrows to the extent practicable. Avoidance is not required for previously developed or heavily disturbed areas, such as existing roads, compacted surfaces, or other infrastructure. If avoidance is not feasible, surveys for giant and Tipton kangaroo rat species and San Joaquin antelope squirrel would first include a more focused habitat assessment to identify where suitable burrow clusters occur as described below.

To avoid potential impacts to the federally and state-listed Tipton kangaroo rat, giant kangaroo rat, and San Joaquin antelope squirrel all trapping efforts shall be conducted by qualified Biologists in accordance with the USFWS 2013-approved Survey Protocol (USFWS 2013). The following measures shall be implemented:

- A qualified Biologist shall identify up to 1,000 trap locations in areas with the highest quality habitat within a 10 percent sample area (approximately 48.2 acres). No more than 100 traps shall be managed by each biologist per trapping session.

- Traps shall be baited with sterilized proso millet to prevent germination and shall be checked at least once per night or more frequently as required by the Biologist's Memorandum of Understanding and/or recovery permits.
- All captured Tipton kangaroo rat, giant kangaroo rat, or San Joquin antelope squirrel individuals shall be immediately released into a nearby suitable burrow. Trapping shall cease within a zone once presence of Tipton kangaroo rat, giant kangaroo rat, or San Joquin antelope squirrel has been confirmed in that zone.
- Trapping shall occur during the species' peak activity period (April 1–October 31) for up to 5 consecutive nights. If a target species is captured earlier, trapping will cease in that zone.
- All traps shall be closed during inclement weather, including a forecast of 40 percent or greater chance of rain, temperatures exceeding 105°F, or dropping below 50°F. When temperatures drop below 50°F, traps shall be checked at least every 3 hours, and supplemented with unbleached paper towels and additional food. Trapping shall cease if captured animals show signs of hypothermia.
- If a lactating female or dependent young is captured, trapping will immediately cease in the area, at the discretion of the Permitted Biologist.
- A 50-foot buffer shall be established around all anthropogenic features (for example, roads, pipelines) for safety.
- All trapping efforts shall be documented using standardized data sheets. Observations shall include biologist name, date, trap times, weather conditions, and species data (for example, GPS location, time of capture, sex, age, weight, and general health).
- A CNDDB report shall be submitted within 60 days for any captures of listed species. A brief trapping report shall be submitted to, CDFW, and USFWS for review and approval.

If it is determined that giant kangaroo rat, Tipton kangaroo rat, and/or San Joquin antelope squirrel are absent, then no further measures are warranted. If present, the following measures shall be implemented:

- The loss of occupied habitat shall be compensated at an agreed-upon ratio with the CDFW and USFWS.
- Consultations with USFWS and CDFW shall occur, and ITPs shall be acquired if take of listed species cannot be avoided.
- If Tipton kangaroo rat, giant kangaroo rat, or San Joquin antelope squirrel are detected, a Relocation Plan shall be prepared by a qualified biologist and reviewed by and implemented in consultation with USFWS and CDFW.

MM 4.4-16: Within 14 days prior to the start of project ground-disturbing activities, a pre-activity survey with a 500-foot buffer where land access is permitted shall be conducted by a qualified biologist knowledgeable in the identification of these species and approved by CDFW. Surveys need not be conducted for all areas at one time; they may be phased so that surveys occur within 14 days of the portion of the project site that will be disturbed. If dens/burrows that could support any of these species are discovered during the pre-activity survey, the avoidance buffers outlined below shall be established. No work shall occur within these buffers unless the biologist approves and monitors the activity.

Burrowing Owl (Active Burrows)

Nonbreeding season (September 1–January 31): 160 feet

Breeding season (February 1–August 31): 250 feet

American Badger/San Joaquin Kit Fox

Potential or atypical den: 50 feet

Known den: 100 feet

Natal or pupping den: 500 feet, unless otherwise specified by CDFW and/or USFWS

If burrowing owls are detected, a Burrowing Owl Management and Relocation Plan shall be prepared by a qualified biologist and reviewed by, and implemented in consultation with, CDFW. Unless otherwise approved by CDFW, disturbance to occupied burrows shall be avoided. Disturbance to suitably sized burrows (>11 cm wide) shall be avoided during the breeding season (February 1 through August 31) unless proven to be unoccupied. Buffers shall be established around occupied burrows in accordance with guidance provided in CDFG's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012: or most recent guidance). No Project activities shall be allowed to encroach into established buffers without the notification to CDFW. The buffer shall remain in place until it is determined that occupied burrows have been vacated.

Outside of the nesting season (September 1 through January 31), passive owl relocation techniques as outlined in the Burrowing Owl Management and Relocation Plan shall be implemented with notification to CDFW.

As directed above, if impacts to burrowing owl or San Joaquin kit fox cannot be feasibly avoided, the project proponent will confer with CDFW/USFWS to determine if take authorization from CDFW/USFWS through the CESA and/or ESA ITP process or other agency-approved method is recommended. If recommended, the ITP or other agency-approved permit shall provide suitable

avoidance and minimization measures to reduce potential impacts, and adequate mitigation. Mitigation of occupied habitat at a ratio to be determined in consultation with the appropriate agencies may be through on- or off-site preservation with permanent protection and long-term funding, or through purchase of equivalent credits through a mitigation bank if available in addition to implementing all other measures and conditions of the permit.

MM 4.4-17: All permanent fencing installed on the perimeter of the main project site during operations will be designed to allow for passage of San Joaquin Kit Fox (SJKF), their prey and other wildlife, while impeding the passage of larger predators such as coyotes and similar species. Chain link fencing shall be installed with a four inch gap from the bottom of the fencing material and shall be knuckled back to form a smooth edge, or with 4- to 7-inch portals at an appropriate height for use by species such as San Joaquin kit fox and American badger. Perimeter fencing shall not be electrified. Alternate designs may also be constructed with documentation of coordination with California Department of Fish and Wildlife (CDFW) and United States Fish and Wildlife Service (USFWS) and demonstration that comments provided by the Agencies have been considered and addressed.

MM 4.4-18: In the unanticipated event of any fuel or hazardous waste leaks or spills**,** the project proponent/operator shall immediately stop work in the affected area and, pursuant to pertinent federal and state statutes and regulations, arrange for repair and cleanup by qualified individuals at the time of occurrence, or as soon as it is safe to do so.

MM 4.4-19: Prior to the issuance of grading or building permits, the project proponent/operator shall, in consultation with the qualified biologist, clearly delineate the boundaries of construction and decommissioning activities with fencing, stakes, or flags, consistent with grading and construction plans, within which project impacts will take place. All impacts outside the fenced, staked, or flagged areas shall be avoided, and all fencing, stakes, and flags shall be maintained until the completion of impacts in that area.

MM 4.4-20: Lighting for project activities and operations within 50 feet of the outside edge of the impact footprint containing habitat for special-status wildlife shall be directed away from natural areas and, pursuant to Mitigation Measure MM 4.1-5, be in compliance with Kern County's Dark Skies Ordinance to minimize nighttime light in unincorporated areas of Kern County.

MM 4.4-21: Mapped CDFW-designated sensitive communities should be avoided to the maximum extent possible. Any CDFW-designated sensitive communities that are directly and permanently impacted shall be mitigated at a ratio of 2:1 acre on-site or at a nearby location with comparable habitat value. Prior to the issuance of a grading permit for construction and decommissioning activities, if full avoidance

of the three CDFW-designated sensitive vegetation communities is not feasible, direct impacts shall be mitigated as follows:

- Direct permanent impacts on up to 192.5 acres of bush seepweed scrub shall be mitigated at a 2:1 ratio (up to 385.0 acres, depending on final impacts)
- Direct permanent impacts on up to 0.2 acres of spinescale scrub shall be mitigated at a 2:1 ratio (up to 0.4 acres, depending on final impacts)
- Direct permanent impacts on up to 12.3 acres of tar plant fields shall be mitigated at a 2:1 ratio (up to 24.6 acres, depending on final impacts)

Impacts shall be mitigated through one or more of the following as determined through consultation with the Kern County Planning and Natural Resources Department: preservation, restoration, enhancement, or establishment/re-establishment.

MM 4.4-22: Prior to issuance of any grading or building permit, the project proponent/operator shall submit a final aquatic resources delineation report to Kern County. A copy of this report shall also be provided to the Central Valley Regional Water Quality Control Board and the California Department of Fish and Wildlife. The report shall include delineation of all potential state and federal jurisdictional features at the project site. Potential jurisdictional features within the project boundary identified in the jurisdictional delineation report may be shown in plan form.

Any determination on the basis of the final project design relative to the final delineation report that the project will impact state or federal jurisdictional aquatic resources shall require the project proponent to obtain all necessary permits/authorizations from the appropriate regulating agencies (Regional Water Quality Control Board, and the California Department of Fish and Wildlife to impacting state or federal jurisdictional features.

Any material/spoils generated from project activities containing hazardous materials will be located away from state and federal jurisdictional waters and special-status habitat and protected from storm water run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate.

Equipment containing hazardous liquid materials will be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage from contaminating the ground and at least 50 feet outside the delineated boundary of jurisdictional water features.

MM 4.4-23: Prior to ground disturbance activities that would impact aquatic features, the project proponent/operator shall be subject to provisions as identified below:

a. The project proponent/operator shall file a complete Report of Waste Discharge or proof of exemption with the Regional Water Quality Control Board (RWQCB) to obtain Waste Discharge Requirements or an exemption to the Waste Discharge Requirements (WDR), and shall also confer with the California Department of Fish and Wildlife (CDFW) on the need for a Lake and Streambed Alteration Agreement. Copies of reports shall be submitted to the County.

b. Based on conferral with RWQCB and CDFW, if permits are required for the project site, appropriate permits shall be obtained prior to disturbance of jurisdictional resources.

c. Compensatory mitigation for impacts to unvegetated streambeds/washes shall be identified prior to disturbance of the features and implemented at a minimum 1:1 ratio, as approved by the RWQCB or CDFW either through onsite or offsite mitigation, or purchasing credits from an approved mitigation bank.

d. The project proponent/operator shall comply with the compensatory mitigation required and proof of compliance, along with copies of permits obtained from RWQCB and/or CDFW, shall be provided to the County.

e. A Habitat Mitigation and Monitoring Plan (HMMP) shall be prepared that outlines the compensatory mitigation in coordination with the RWQCB and CDFW.

    1. If onsite mitigation is proposed, the HMMP shall identify those portions of the site, such as relocated drainage routes, that contain suitable characteristics (e.g., hydrology) for restoration. Determination of mitigation adequacy shall be based on comparison of the restored habitat with similar, undisturbed habitat in the site vicinity (such as upstream or downstream of the site).

    2. The HMMP shall include remedial measures in the event that performance criteria are not met.

    3. If mitigation is implemented offsite, mitigation lands shall be comprised of similar or higher quality and preferably located in Kern County. Offsite land shall be preserved through a deed restriction or conservation easement and the HMMP shall identify an approach for funding assurance for the long-term management of the conserved land. Alternatively, the applicant may purchase credits from an approved mitigation bank.

    4. Copies of any coordination, permits, etc., with RWQCB and CDFW shall be provided to the County.

MM 4.4-24: Prior to issuance of building permits, that applicant shall provide shall demonstrate to the satisfaction of the Kern County Planning and Natural Resource Department Director, that the project applicant/operator shall install power lines in

conformance with Avian Power Line Interaction Committee (APLIC) standards for electrocution-reducing techniques as outlined in Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006), and for collision-reducing techniques as outlined in Reducing Avian Collisions with Power Lines: The State of the Art in 2012 (APLIC 2012), or any superseding document issued by APLIC.

MM4.4-25 Prior to initiating ground disturbance during the construction and decommissioning phases of the project, a preconstruction survey shall be conducted by a qualified biologist, in areas of suitable habitat for Buena Vista Lake ornate shrew, and the suitable habitat shall be avoided if feasible. If avoidance is not feasible, a qualified biologist shall identify suitable habitat for Buena Vista Lake ornate shrew within the project site and prepare a survey plan for review and approval by the USFWS.

If Buena Vista Lake ornate shrew is detected, the project proponent shall coordinate with the USFWS to determine whether take can be avoided or take authorization under the ESA is needed. If take is authorized, then the project proponent shall comply with all provisions of said authorization, and provide compensatory mitigation for impacted natural habitat as determined by USFWS.

Level of Significance after Mitigation

Less than significant.

Impact 4.4-2: Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS?

Direct Impacts

Surveys of the BSA identified three CDFW-designated sensitive natural communities. These communities include: bush seepweed scrub, spinescale scrub, and tar plant fields. The proposed Project would result in permanent direct impacts to these sensitive natural communities (**Table 4.4-10** *Project Impacts on Sensitive Plant Communities*). Direct impacts may include the removal of existing vegetation and/or encroachment into the plant communities. Permanent impacts would occur from construction of the gen-tie lines, solar panels, internal roads, and in laydown areas. Within the BSA, 192.5 acres of bush seepweed scrub was delineated in the permanent impact area (Sites 2, 3, 8 and gen-tie line). There are 0.2 acres of spinescale scrub delineated in the BSA (Site 8). Scale broom scrub was not observed in any other area included in the BSA. There are 12.3 acres of tar plant fields delineated in the permanent impact area (Site 3 and gen-tie line). Impacts to sensitive vegetation communities including bush seepweed scrub, spinescale scrub, and tar plant fields would be less than significant within the Project site with the implementation of Mitigation Measures MM 4.4-19 and MM 4.4-21, which requires delineating the boundaries of construction

activities with fencing, stakes, or flags and avoiding such areas, and mitigation for direct impacts to sensitive vegetation communities where avoidance is infeasible.

Table 4.4-10: Project Impacts on Sensitive Natural Communities

Plant Community	Site 2	Site 3	Site 8	Gen-Tie Line
Bush seepweed scrub	46.4	91.8	47.4	6.8
Spinescale scrub	—	—	0.2	—
Tar plant fields	—	11.9	–	0.4
Total (acres)	**46.4**	**103.8**	**47.6**	**7.2**

Source: Dudek 2025a (Appendix D.2)

Indirect Impacts

Indirect impacts could occur to adjacent sensitive plant communities as a result of proposed Project construction. Indirect impacts could result from introduction of invasive vegetation, exposure of natural areas to contaminants from equipment maintenance, and fugitive dust generated during construction activities. Invasive plant species are opportunistic and often occupy disturbed or exposed soils. Once introduced, these exotic plant species often outcompete natives for resources, resulting in a reduction in growth, future dispersal, recruitment of native species, and the eventual degradation of the plant community. Erosion and storm water contaminant runoff from graded or impervious surfaces may also degrade adjacent plant communities. Finally, dust deposition on leaf surfaces may result from construction activities and construction-related traffic on dirt roads or lots, thus reducing the photosynthetic vigor of plants comprising native communities. However, indirect impacts to sensitive vegetative communities would be reduced with implementation of Mitigation Measure MM 4.4-5 requiring invasive species control, Mitigation Measure MM 4.4-6 that requires dust control measures during site preparation and construction, and Mitigation Measure MM 4.4-18 that requires repair and cleanup by qualified individuals of any fuel or hazardous waste leaks or spills. These measures would reduce impacts to this sensitive plant community to less than significant.

Because Project construction would directly impact the entire mapped extent (approximately 205.0 acres) of sensitive plant communities within the BSA, it is unlikely that impacts would occur during the operation and maintenance of the proposed Project. However, direct impacts may include the removal of existing vegetation and encroachment into sensitive natural communities. Additionally, indirect impacts are possible from erosion and storm water contaminant runoff from graded or impervious surfaces may also degrade adjacent plant communities. These direct and indirect operational impacts to sensitive plant communities are potentially significant, but would be reduced through implementation of the mitigation measures described above for construction activities. Therefore, implementation of these mitigation measures would reduce the potential operation and maintenance-related impacts to sensitive plant communities to less than significant.

Direct and indirect impacts to sensitive plant communities during Project decommissioning would be similar to those that would occur during construction, but would depend on the presence of sensitive plant communities on, and/or adjacent to, the Project site at the time of decommissioning.

Additional indirect impacts could result from introduction of invasive vegetation, exposure of natural areas to contaminants from equipment maintenance, and fugitive dust generated during decommissioning activities. Depending on the resources present on, and/or adjacent to, the Project site at the time of decommissioning, decommissioning activities could result in significant impacts to sensitive plant communities. Because decommissioning Project impacts are anticipated to be similar to those during the construction phase, mitigation measures described above for construction activities would also be implemented during decommissioning. Therefore, impacts to sensitive plant communities would be reduced to less than significant during decommissioning of the proposed Project.

PG&E Midway Substation Upgrades

The Biological Resources Habitat Assessment (Appendix D.5) concluded that no riparian vegetation or sensitive natural vegetation communities were present on the Midway Substation site. Therefore, no impact would occur from development and use of the Midway Substation upgrades.

Summary

The proposed Project would result in potentially significant, but mitigable direct and indirect impacts to aquatic resources and sensitive natural communities that the USFWS and CDFW regulate.

Mitigation Measures

Implement Mitigation Measures MM 4.4-5, MM 4.4-6, MM 4.4-18, MM 4.4-19 and MM 4.4-21.

Level of Significance after Mitigation

Less than significant.

Impact 4.4-3: Would the Project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Waters of the United States

The Aquatic Resources Delineation Report (Appendix D.4) concluded that all wetlands mapped within the review area (approximately 91.28 acres) met the three wetland parameters required to qualify as wetland WOTUS; however, the features are isolated and do not have a direct surface connection to a traditional navigable water and therefore do not quality as WOTUS. Therefore, no impact to wetland WOTUS would occur.

Waters of the State

The proposed Project would result in direct impacts to up to 13.0 acres of non-wetland waters and up to 91.3 acres of wetlands at the Project site. These features are potentially subject to RWQCB

regulation under the Porter-Cologne Water Quality Control Act. Additionally, the proposed Project would result in direct impacts up to 6.1 acres of lake/pond, up to 91.3 acres of riparian, and up to 6.8 acres of streambed which CDFW regulates pursuant to Section 1600 of the CFGC.

Given the presence of wetland and non-wetland waters of the state and areas subject to CDFW's jurisdiction under Fish and Game Code section 1600 et seq. on-site and the anticipated impacts to these waters, potentially significant impacts to aquatic resources could occur. Implementation of the Mitigation Measures MM 4.4-1 and MM 4.4-2 would ensure that the biological monitor has the authority to halt work if necessary during construction to protect biological resources, and require the project biologist to conduct a WEAT program for all construction/contractor personnel. Implementation of Mitigation Measure MM 4.4-22 would require a final delineation prior to issuance of grading or building permits and would limit storage of materials and spoils including hazardous materials and implementation of other best practices to minimize impacts to jurisdictional resources. Mitigation Measure MM 4.4-23 would require compliance with RWQCB and CDFW requirements for work impacting their jurisdiction.

PG&E Midway Substation Upgrades

The Biological Resources Habitat Assessment (Appendix D.5) concluded that no state or federally protected wetlands were present at the Midway Substation site. Therefore, no impact would occur.

Summary

Although the proposed Project would not result in impacts to aquatic resources that are considered WOTUS, the proposed Project would result in direct impacts to 13.0 acres of non-wetland waters and up to 91.3 acres of wetlands, which are likely subject to RWQCB and CDFW regulation pursuant to the Porter-Cologne Water Quality Control Act and CFGC (respectively). These impacts are potentially significant but mitigable with implementation of the following mitigation measures.

Mitigation Measures

Implement Mitigation Measures MM 4.4-1, MM 4.4-2, MM 4.4-22 and MM 4.4-23.

Level of Significance after Mitigation

Less than significant.

Impact 4.4-4: Would the Project interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors or impede the use of wildlife nursery sites?

There are no wildlife nursery sites or regional wildlife linkages or corridors on, or in the vicinity of, the Project site. Scattered washes run generally northwest to southeast, but there is no riparian vegetation to support concentrations of wildlife; all habitats within the Project site are very dry or contain little moisture and similar to those present in the surrounding areas. The washes are landscape features that are likely to represent wildlife movement corridors locally; however, there is no evidence that they provide avenues for concentrations of wildlife. No known or identified

wildlife corridors exist within the Project site and the Project site has not been identified as a wildlife connectivity area as mapped by the California Essential Habitat Connectivity Project.

Project construction, fencing, and activities associated with construction, operations and maintenance, and decommissioning have the potential to interfere with local movement of wildlife on, and/or adjacent to, the Project site; however, the Project site is not located within a known regional wildlife linkage or migratory corridor. Although fencing would be installed around the Project site, the access roads and gen-tie lines would not be fenced, and no major barriers would be created that would prevent or impede wildlife movement in the region. Because the area is open and wildlife can move throughout the region unimpeded, the proposed Project would not pose a physical barrier to large-scale wildlife movement, and no major wildlife passages would be permanently reduced or eliminated by the proposed Project. However, the proposed Project includes the installation of fencing around the Sites which could significantly impede wildlife movement. The proposed Project would implement Mitigation Measure 4.4-17 which provides fencing requirements to enable wildlife to move freely through the Project site during construction and operation. Further, lighting within the Project site could potentially affect local movement of nocturnal wildlife by deterring them from illuminated areas around the Project site. However, all lighting installed as a part of the proposed Project would comply with the Kern County Dark Skies Ordinance and would be shielded and directed downward to minimize the potential for glare or spillover onto adjacent properties as provided in Mitigation Measure MM 4.4-20 and, by reference, Mitigation Measure MM 4.1-5. Compliance with these mitigation measures would reduce the temporary impacts to wildlife movement through the area. Therefore, with implementation of Mitigation Measures MM 4.4-17 and MM 4.4-20, the proposed Project would not adversely impact wildlife movement and impacts would be less than significant.

PG&E Midway Substation Upgrades

The proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed photovoltaic (PV) solar facilities with the Midway Substation. Construction, grading, and excavation activities will be required for the installation of these facilities.

There are no wildlife nursery site or regional wildlife linkages or corridors on, or in the vicinity of, the Midway Substation site. However, proposed Project construction, fencing, activities, and lighting associated with construction, operations and maintenance, and/or decommissioning have the potential to interfere with local movement of wildlife on, and/or adjacent to, the Midway Substation site. Therefore, PG&E should implement Mitigation Measures MM 4.4-17 and MM 4.4-20 to reduce potential impacts to wildlife movement.

Mitigation Measures

Implement Mitigation Measures MM 4.4-17 and MM 4.4-20.

Level of Significance after Mitigation

Less than significant.

Impact 4.4-5: Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

As currently designed, the proposed Project would be consistent with the Land Use, Open Space, and Conservation Element of the KCGP. The proposed Project would implement Mitigation Measures MM 4.4-1 through MM 4.4-25 to reduce potential proposed Project-related impacts to sensitive biological resources including special status species and jurisdictional features as discussed above in Impacts 4.4-1 through Impacts 4.4-4. The Project site is partially within the Buttonwillow Community Development Plan. The Buttonwillow Community Development Plan requires avoidance of sensitive species. As discussed under Impact 4.4-2, direct impacts to bush seepweed scrub, spinescale scrub, and tar plant fields would occur through disturbance or removal of existing vegetation. Impacts would be significant. However, indirect impacts on native and sensitive vegetative communities are expected to be greatly reduced with implementation of Mitigation Measure MM 4.4-21. Implementation of this mitigation measure would reduce the potential impacts to sensitive plant species from construction, operation and maintenance, and decommissioning, to less than significant.

PG&E Midway Substation Upgrades

The proposed Project, which includes enlarging the Midway Substation's 500-kV yard within the Midway Substation site, is considered consistent with the Land Use, Open Space, and Conservation Element of the KCGP. PG&E should implement Mitigation Measures 4.4-1 through 4.4-25 to reduce potential proposed Project-related impacts to sensitive biological resources including special status species and jurisdictional features as discussed above in Impacts 4.4-1 through Impacts 4.4-4. Finally, as described above, PG&E would require the implementation of biological resources BMPs (Appendix M).

Mitigation Measures

Implement Mitigation Measures 4.4-1 through 4.4-25.

Level of Significance after Mitigation

Less than significant.

Impact 4.4-6: Would the Project conflict with the provisions of an adopted habitat conservation plan, natural conservation community plan, or other approved local, regional, or state habitat conservation plan?

The proposed Project would not conflict with an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan.

The Kern County Valley Floor Habitat Conservation Plan is in draft form and has not been adopted. Therefore, no impact would occur.

PG&E Midway Substation Upgrades

The proposed Project, which includes enlarging the Midway Substation's 500-kV yard within the Midway Substation site, would not conflict with an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan. Therefore, no impact would occur.

Mitigation Measures

No mitigation measures are required.

Level of Significance after Mitigation

Not applicable—no impacts would occur.

4.4.5 Cumulative Setting, Impacts, and Mitigation Measures

Cumulative impacts for a project would be significant if the incremental effects of the individual project are considerable when combined with the effects of past projects, other current projects, and probable future projects. As described above, the proposed Project-specific impacts would be less than significant with implementation of Mitigation Measures MM 4.4-1 through MM 4.4-25 and MM 4.1-4 and MM 4.1-5 (Section 4.1, *Aesthetics and Visual Resources*).

As large-scale energy projects and urbanization pressures increase within Kern County, impacts to biological resources within the region are expanding on a cumulative level. As described in **Table 3.5:** *Cumulative Project List*, in Chapter 3, *Project Description*, of this EIR, other projects that could have impacts to biological resources similar to those identified above regarding the proposed Project, have been completed or are proposed within the southern San Joaquin Valley. In general, bioregions are defined through physical and environmental features, including watershed boundaries and soil and terrain characteristics. The Project site lies within the Antelope Plain in the southwestern perimeter of the San Joaquin Valley, east of the Temblor Mountain Range. The Temblor Mountain Range and the boundaries of the Valley Region, as well as other bioregions, are separated from the Project site by topography and other geographical features. In addition, built features such as I-5, the California Aqueduct, and other major roadways and water conveyances act as barriers to wildlife movement.

As described above, there are a number of special-status species that currently utilize the Project site and surrounding vicinity. Implementation of the proposed Project, in addition to the other projects underway or proposed within Kern County, would have the potential to impact the same plant and wildlife species. The Project site contains habitat that support insects, rodents, and small birds that provide a prey base for raptors and terrestrial wildlife. In addition, based on the literature review and database search completed for the project, the region is known to support a diversity of special-status species, most of which are expected to utilize the Project site on a transient basis, if

at all. Given the number of present and reasonably foreseeable future development projects in the San Joaquin Valley, the proposed Project, when combined with these projects, would contribute to an incremental cumulative loss of habitat for special-status species. While the proposed Project would have less than significant impacts on sensitive biological resources with the implementation of Mitigation Measures MM 4.4-1 through MM 4.4-25, MM 4.1-4 and MM 4.1-5 (see Section 4.1, *Aesthetics and Visual Resources*) at the Project level, when combined with related development projects, cumulative impacts would be significant and unavoidable.

With regard to sensitive natural communities, proposed Project activities would directly impact bush seepweed scrub, spinescale scrub, and tar plant fields. While the proposed Project would have less than significant impacts on sensitive natural communities with the implementation of Mitigation Measures MM 4.4-5, MM 4.4-6, MM 4.4-19, and MM 4.4-21 at the Project level, when combined with related development projects, cumulative impacts would be significant and unavoidable.

As described above, non-wetland waters and wetlands occur within the Project site and would be impacted by the proposed Project. Although features found on the Project site are not considered WOTUS and, therefore, are not subject to regulation under the federal CWA, these features are expected to be jurisdictional waters of the state pursuant to the Porter-Cologne Act and Section 1600 of the CFGC. However, with incorporation of Mitigation Measures MM 4.4-1, MM 4.4-2, MM 4.4-22, and MM 4.4-23, the contribution of proposed Project impacts on such resources would not be cumulatively considerable.

When considered in combination with other existing and reasonably foreseeable projects in the surrounding, relatively flat, and open portions of the Valley Region south of the Tehachapi foothills, west to the coast range, east to the Sierra Nevada, and north beyond the Kern County boundary, the proposed Project has the potential to further reduce local wildlife movement. While the proposed Project would have less than significant impacts on the movement of wildlife species with the implementation of Mitigation Measures MM 4.4-17, MM 4.4-21, and MM 4.1-5 (See Section 4.1, *Aesthetics and Visual Resources*) at the Project level, when combined with related development projects, cumulative impacts would be significant and unavoidable.

The Project site is partially within the Buttonwillow Community Development Plan. As discussed under Impact 4.4-2, direct impacts to bush seepweed scrub, spinescale scrub, and tar plant fields would occur through disturbance or removal of existing vegetation. While the proposed Project would have less than significant impacts on biological resources with the implementation of Mitigation Measures MM 4.4-5, MM 4.4-6, MM 4.4-19, and MM 4.4-21 at the Project level, when combined with related development projects, cumulative impacts would be significant and unavoidable.

The proposed Project would not conflict with an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan. Therefore, the contribution of proposed Project impacts would not be cumulatively considerable.

PG&E Midway Substation Upgrades

The proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. Construction, grading, and excavation activities will be required for the installation of these facilities.

Impacts associated with construction of Midway Substation upgrades would involve 38.6 acres and result in minimal ground disturbance. However, PG&E should implement Mitigation Measures MM 4.4-1 through MM 4.4-9, MM 4.4-14 through MM 4.4-7, MM 4.4-30, and MM 4.1-4 (see Section 4.1, *Aesthetics and Visual Resources*) to avoid and/or mitigate significant impacts to biological resources that could arise from proposed Project activities. Further, PG&E would implement standard BMPs(Appendix M). Finally, as stated above, regardless of the impacts of other projects included in the analysis of cumulative impacts, the proposed Project's incremental contribution to cumulative impacts regarding biological resources from the Midway Substation upgrades would not be cumulatively considerable or significant with the implementation of Mitigation Measures MM 4.4-1 through MM 4.4-7, MM 4.4-11 through MM 4.4-20, MM 4.4-24 and MM 4.1-4 and MM 4.1-5 (see Section 4.1, *Aesthetics and Visual Resources*).

Summary

The proposed Project would make a cumulatively considerable contribution to significant cumulative impacts involving: certain special-status species that currently, or have moderate to high potential to, utilize the Project site and surrounding vicinity; certain sensitive natural communities found on, or within proximity to, the Project site; waters and wetland features that—although not WOTUS—are likely jurisdictional waters of the state pursuant to the Porter-Cologne Act and Section 1600 of the CFGC; and local wildlife movement. The proposed Project's contribution to these cumulative impacts would be reduced with the implementation of the Project-specific mitigation measures described above; however, impacts to special status species, sensitive natural communities, and wildlife movement would remain significant and unavoidable.

The proposed Project would not conflict with—and does not have the potential to contribute to cumulative impacts involving—the implementation of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan.

Mitigation Measures

With the implementation of Mitigation Measures MM 4.4-1 through MM 4.4-25 and MM 4.1-4 and MM 4.1-5 (see Section 4.1, *Aesthetics and Visual Resources*) cumulative impacts would remain significant and unavoidable to special status species, raptors, and other migratory birds, sensitive natural communities, and transient wildlife species.

Level of Significance after Mitigation

Cumulative impacts would be significant and unavoidable.

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Section 4.5

Cultural Resources

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Section 4.5
Cultural Resources

4.5.1 Introduction

This section of the Draft Environmental Impact Report (EIR) describes the affected environment and regulatory setting regarding cultural resources for the proposed Buttonbush Solar and Storage Project (proposed Project) site, including the area's pre-Contact, ethnographic, and historical settings. This section also analyzes the impacts on cultural and historical resources that would result from implementation of the proposed Project and identifies mitigation measures to address adverse impacts.

A description of the environmental setting (affected environment) for cultural resources is presented below in Section 4.5.2, *Environmental Setting*. The regulatory setting applicable to cultural resources is presented in Section 4.5.3, *Regulatory Setting*, and Section 4.5.4, *Impacts and Mitigation Measures*, discusses proposed Project impacts and associated mitigation measures.

This section is informed by three historic inventories prepared by Dudek. The inventories include the *Built Environment Inventory and Evaluation Report* (Dudek 2025a, Appendix E.3), *Farming History Report* (Dudek 2025, Appendix B), and the *Archaeological Resources Inventory and Evaluation Report* (Dudek 2025b, Appendix E.1).

The cultural resources report and Native American consultation were conducted for purposes of compliance with the California Environmental Quality Act (CEQA) and Assembly Bill (AB) 52 (2014). Given that the locations of cultural resources are confidential, this Draft EIR does not include maps or descriptions that identify the locations of cultural resources. The proposed Project's potential impacts on tribal cultural resources are addressed in Section 4.16, *Tribal Cultural Resources*.

Cultural Resource Terminology

For the purposes of CEQA, cultural resources generally refer to pre-Contact and post-Contact (historic) archaeological sites and their associated built environments. Cultural resources can also include areas determined to be important to Native Americans. Historical resources generally refer to cultural resources that have been determined to be significant, either by eligibility for listing in state/local registers of historical resources, or by determination of a lead agency. (See the definitions in the following list.) Historical resources can also include areas determined to be important to Native Americans, such as sacred sites. Sacred sites are most often important to Native American groups because of the role of the location in traditional ceremonies or activities.

Below are definitions of key cultural resources terms used in this section:

- **Alluvium:** A fine-grained fertile soil consisting of mud, silt, and sand deposited by flowing water on flood plains, in riverbeds, and in estuaries.
- **Archaeological Site:** A place or places defined by the National Register of Historic Places (NRHP) where the remnants of a past culture survive in a physical context that allows for the interpretation of these remains. Archaeological remains usually take the form of artifacts (for example, fragments of tools, vestiges of utilitarian, or non-utilitarian objects), features (for example, remnants of walls, cooking hearths, or midden deposits), and ecological evidence (for example, pollen remaining from plants that were in the area when the activities occurred). **Pre-Contact archaeological sites** generally represent the material remains of Native American groups and their activities dating to the period before European contact (the Contact period). In some cases, pre-Contact sites may contain evidence of trade contact with Europeans. **Ethnohistoric archaeological sites** are defined as Native American settlements occupied after the arrival of European settlers in California. **Historic archaeological sites** reflect the activities of nonnative populations in the period after initial European contact (the post-Contact period, also known as the "historic period").
- **Artifact:** An object that has been made, modified, or used by a human being.
- **Cultural Resource:** A cultural resource is a location of human activity, occupation, or use identifiable through field inventory, historical documentation, or oral evidence. Cultural resources include archaeological resources and vestiges of the built environment (also known as "historic architectural resources"), including (but not limited to) sites, structures, buildings, objects, artifacts, works of art, architecture, and natural features that were important in past human events. They may consist of physical remains or areas where significant human events occurred, even though evidence of the events no longer remains. Cultural resources also include places that are considered to be of traditional cultural or religious importance to social or cultural groups.
- **Cultural Resources Study Area:** All areas within the Project site boundary plus a 1-mile buffer.
- **Cultural Resources Survey Area:** All areas of potential permanent and temporary impacts for a reasonable worst-case development within the Project site, plus a 60-foot buffer to account for secondary or unanticipated impacts.
- **Ethnographic:** Relating to the study of human cultures. "Ethnographic resources" represent the heritage resource of a particular ethnic or cultural group, such as Native Americans or African, European, Latino, or Asian immigrants. They may include traditional resource-collecting areas, ceremonial sites, value-imbued landscape features, cemeteries, shrines, or ethnic neighborhoods and structures.
- **Historic Period:** The period that begins with the arrival of the first nonnative population and thus varies by area. In 1772, Commander Don Pedro Fages was the first European to enter Kern County, initiating the historic period in the proposed Project study area.

- **Historical Resource:** This term is used for the purposes of CEQA and is defined in the CEQA Guidelines (Section 15064.5) as: (1) a resource listed in, or determined to be eligible for listing in the California Register of Historical Resources (CRHR); (2) a resource included in a local register of historical resources, as defined in Public Resources Code (PRC) Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record.
- **Holocene:** Of, denoting, or formed in the second and most recent epoch of, the Quaternary period, which began 10,000 years ago at the end of the Pleistocene.
- **Isolate:** An isolated artifact or small group of artifacts that appear to reflect a single event, loci, or activity. An isolated artifact may lack identifiable context but has the potential to add important information about a region, culture, or person. Isolates are not considered under CEQA to be significant and, thus, do not require avoidance mitigation (CEQA Statute Section 21083.2 and CEQA Guidelines Section 15064.5). However, all isolates located during the field surveys of the Project site were recorded and the data were transmitted to the appropriate California Historical Resources Information System Information Center.
- **Lithic:** Of or pertaining to stone. Specifically, in archaeology lithic artifacts are chipped or flaked stone tools, and the stone debris resulting from their manufacture.
- **Native American Sacred Site:** An area that has been, and often continues to be, of religious significance to Native American peoples, such as an area where religious ceremonies are practiced or an area that is central to their origins as a people. They also include areas where Native Americans gather plants for food, medicinal, or economic purposes.
- **Pleistocene (Ice Age):** An epoch in the Quaternary period of geologic history lasting from 1.8 million to 10,000 years ago. The Pleistocene was an epoch of multiple glaciation, during which continental glaciers covered nearly one fifth of the earth's land.
- **Pre-Contact Period:** The era prior to 1772. The latter part of the pre-Contact period (post-1542) is also referred to as the protohistoric period in some areas, which marks a transitional period during which native populations began to be influenced by European presence resulting in gradual changes to their lifeways.
- **Stratigraphy:** The natural and cultural layers of soil that make up an archaeological deposit, and the order in which they were deposited relative to other layers.
- **Tribal Cultural Resource:** Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American Tribe that are either included or determined to be eligible for inclusion in the CRHR or included in a local register of historical resources (PRC Section 21074(a)(1)). Refer to Section 4.16, *Tribal Cultural Resources*, of this Draft EIR for further discussion.

- **Unique Archaeological Resource:** An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
  - Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
  - Has a special and particular quality such as being the oldest of its type or the best available example of its type.
  - Is directly associated with a scientifically recognized important prehistoric or historic event or person (*Ibid* Section 21083.2(g)).

4.5.2 Environmental Setting

The Project site is located on 128 parcels across approximately 11,983 acres of privately owned land currently utilized for agricultural uses in the valley region of Kern County (Chapter 3, *Project Description*). The Project site is divided into seven distinct sites (Sites 1 through 6, and Site 8) that constitute the entire Project site, which are all located within unincorporated Kern County, directly north of the community of Buttonwillow, approximately four miles west of the City of Bakersfield, two miles west of the City of Shafter, and approximately seven miles southwest of the City of Wasco

Existing land uses surrounding the Project site consist largely of agriculturally zoned parcels with farm and/or rural residential uses. The primary zoning classification in the 5-mile radius surrounding the Project site is Zone A (Exclusive Agriculture). Single-family residences are located primarily in the unincorporated community of Buttonwillow and are scattered elsewhere within the proposed Project boundaries.

Archaeological Context

Early archaeological investigations in the San Joaquin Valley of California have primarily been conducted at sites located in the Buena Vista and Tulare Lakes regions. The earliest evidence of human occupation in the southern San Joaquin Valley, discovered at the Witt locality at Tulare Lake and reported by West et al. in 1991, included some of the oldest human remains in North America. These investigations of the artifacts of the San Joaquin Valley's pre-Contact cultural groups have revealed a complex history of cultural change that has occurred over time. Through these studies, a cultural chronological framework encompassing three basic periods has been developed. The following general framework proposes three primary periods, although the beginning and ending dates of the recognized cultural horizons vary among different parts of the region:

- Paleoindian Period (circa 16,000 to 8,550 years before present)
- Archaic Period (circa 8,550 years before present to 1,000 Anno Domini (AD)
- Emergent Period (circa 1000 to 1776 AD)

Paleoindian Period (11,550–8550 cal BC)

Occupation of the Central Valley is likely to have occurred at least 10,000 years ago, but only a handful of Paleoindian period sites with lithic bifacial points have been recorded in the region. Fluted points and other Paleoindian period sites are generally rare and found in isolated contexts in the Central Valley due to the dearth of Late Pleistocene–age deposits in the region resulting from periodic episodes of erosion and deposition during the Holocene that have removed or deeply buried large segments of the Late Pleistocene landscape that would contain Paleoindian sites. The largest and most continuous areas of Late Pleistocene surface deposits in the San Joaquin Valley are found north of the Project site, in and around Tulare Lake. Along the southwestern periphery of Tulare Lake, the Witt Site represents the largest collection of early concave-base projectile points in the region, with hundreds of early concave-base and other Paleoindian points recovered from primarily surface contexts along the remnant shoreline. While some of these fluted points are likely from the Late Pleistocene, very few can truly be assigned as "Clovis-like," with other concave base point types such as the Great Basin Concave Point, and other point types similar to the Western Pluvial Lakes Tradition identified in the assemblage.

Archaic Period (8550 cal BC–cal AD 1100)

The Archaic period in the Central Valley is subdivided into three phases: the Lower Archaic (8550–5550 cal BC), the Middle Archaic (5550–550 cal BC), and the Upper Archaic (550 cal BC–cal AD 1100). As with the Paleoindian period, Lower Archaic deposits in the Central Valley tend to be isolated finds lacking stratigraphic context. Stemmed projectile points, flaked stone crescents, and other distinctive flaked stone artifact types are associated with this period, several of which have been found in the vicinity of Tulare Lake.

Despite the paucity of Lower Archaic assemblages in the region, a small collection of sites in the vicinity of the Project site may represent a distinct Western Stemmed Tradition variant local to the southern San Joaquin Valley and dating to the Lower Archaic. This variant of the Western Stemmed Tradition, the Buttonwillow Complex, is represented at three sites: the aforementioned Witt Site, CA-KER-166 on Buena Vista Lake, and CA-KER-2720 adjacent to the Buena Vista Slough. While only two artifact types can be firmly associated with the Buttonwillow Complex, stemmed dart points and crescents, numerous other flaked stone artifacts were recovered from the site assemblages, although ground stone artifacts were notably absent. The location, artifact assemblages, and features from the Buttonwillow Complex sites indicate a subsistence system targeting lacustrine resources, primarily freshwater shellfish and fish, although waterfowl and large mammals also probably contributed to the diet as did marshland plants such as tule, cattail, and sedge.

The onset of the Middle Archaic in Central California marked a substantial change in the climate, with warmer, dryer conditions resulting in the shrinking and eventual drying out of Tulare Lake, a phenomenon common among other Pleistocene lakes throughout the western United States during this time. This also coincided with the formation of new wetland habitats as rising sea levels pushed inland, forming the Sacramento and San Joaquin Deltas. These climatic processes resulted in substantially more stable landforms as fans and floodplains stabilized within the delta, making

buried Middle Archaic deposits much more common than those from the Early Archaic. Middle Archaic sites are typified by the distinct adaptive pattern of logistically organized subsistence practices and residential stability along river corridors. The prevalence of ground stone tools, including early examples of mortars and pestles, suggests an increased reliance on vegetal resources, likely the result of greater residential stability driving resource intensification. Fishing was also an important component of subsistence, as new fishing technologies (including gorge hooks, composite bone hooks, and spears) along with abundant ichthyofaunal remains have been identified at Middle Archaic sites in Contra Costa, Sacramento, and San Joaquin Counties. Regional variations of the Middle Archaic pattern include the Windmiller Pattern, which are characterized by a distinctive burial pattern of extended burials oriented to the west. While the Windmiller Pattern was first identified on old levee ridges at the confluence of the Mokelumne and Cosumnes Rivers, Windmiller sites are widespread in the San Joaquin Valley, as well as the Sacramento and San Joaquin Delta region.

The transition to the Upper Archaic period coincides with the onset of late Holocene environmental conditions, during which time the climate was markedly cooler, wetter, and more stable. The archaeological record from the Upper Archaic is better understood and represented throughout the Central Valley, and is marked by an increase in cultural diversity, with numerous regional distinctions in burial posture, artifact styles, and other elements of material culture. The Upper Archaic record is marked by the development and proliferation of numerous bone tools and implements, as well as widespread production and trade of manufactured goods, including *Olivella* shell beads, *Haliotis* ornaments, and obsidian bifacial roughouts and ceremonial blades. Subsistence economies during the Upper Archaic focused on seasonally structured resources that could be harvested and processed in bulk, including acorns, salmon, shellfish, deer, and rabbits. The proliferation of mortars and pestles and archaeobotanical remains indicate that the first widespread reliance on acorns occurred during this period. Large mounded village sites also first occurred in the delta region during this period. Less is known about the Upper Archaic in the southern San Joaquin Valley; however, the presence of what appear to be year-round villages on Buena Vista Lake, with a variety of residential features and extensive accumulation of midden deposits indicating exploitation of aquatic and terrestrial food sources, appears consistent with the Upper Archaic pattern in general.

On the whole, the Archaic period in the Central Valley is characterized by increasing residential stability, cultural diversity, and subsistence intensification through time.

Emergent Period (cal AD 1100–Historic Contact)

The archaeological record for the Emergent period is the most substantial and well-documented of any period in the Central Valley, and the assemblages and adaptations represented therein are the most diverse. The Emergent period also marks the onset of cultural traditions consistent with those documented at European contact and the disappearance of several previous archaeological traditions. Large villages developed in areas of the Sacramento Valley, and the number of mound villages and smaller hamlets increased across the region, with villages and smaller residential communities developing along many of the foothill side streams, river channels, and sloughs in the San Joaquin Valley. Subsistence economies during the Emergent period were increasingly reliant

on fishing and plant gathering, with increased subsistence intensification evident in the increased reliance on small seeds and a more diverse assortment of mammals and birds. Perhaps the most notable technological change during the Emergent period is the introduction of the bow and arrow, which replaced atlatl technology as the favored hunting implement sometime between AD 1100 and AD 1300. The material record during the Emergent period is also marked by the introduction of new *Olivella* bead and *Haliotis* ornament types, and eventually the introduction of clamshell disc beads. The Emergent period in general is marked by an increase in population size and the number of residential sites and villages throughout the region, with increasing regional variability and resource intensification.

Ethnographic Setting

The history of Native American communities prior to the mid-1700s has largely been reconstructed through later mission-period and early ethnographic accounts. The first records of the Native American inhabitants of the region come predominantly from European merchants, missionaries, military personnel, and explorers. These brief, and generally peripheral, accounts were prepared with the intent of furthering respective colonial and economic aims and were combined with observations of the landscape. They were not intended to be unbiased accounts regarding the cultural structures and community practices of the newly encountered cultural groups. The establishment of the missions in the region brought more extensive documentation of Native American communities, though these groups did not become the focus of formal and in-depth ethnographic study until the early twentieth century. The principal intent of these ethnographic researchers was to record the pre-contact, culturally specific practices, ideologies, and languages that had survived the destabilizing effects of missionization and colonialism. This research, often understood as "salvage ethnography," was driven by the understanding that traditional knowledge was being lost due to the impacts of modernization and cultural assimilation. Alfred Kroeber applied his "memory culture" approach by recording languages and oral histories within the region.

Based on ethnographic information, it is believed that at least 78 mutually unintelligible languages were spoken from Baja California Sur to the southern Oregon state border at the time of Spanish contact. The distribution of recorded Native American languages can be grouped as a geographic mosaic across California through seven primary language families.

During the ethnohistoric period, people living in the immediate vicinity of the Project site would have likely spoken Wowol, a dialect of the Southern Valley Yokuts spoken in the areas southeast of Tulare Lake. More generally, the territory of the Southern Valley Yokuts included most of the southern end of the San Joaquin Valley including Tulare Lake and its surrounding sloughs, as well as the lower portions of the Kings, Kaweah, Tule, and Kern Rivers. Many ethnographers also group Yokuts speakers in the area surrounding Buena Vista and Kern Lakes with the Southern Valley Yokuts due to similarities in lifeways; however, researchers distinguish between Southern Valley and Buena Vista Yokuts based on linguistic differences between the groups.

The Southern Valley Yokuts followed a mixed subsistence economy emphasizing fishing, hunting waterfowl, and collecting shellfish and aquatic plants. Terrestrial large game made up a small proportion of the diet, although vegetable resources were seasonally gathered. Although acorns were collected and sometimes traded for, there were no acorn granaries like those seen among foothill groups. Fish were caught in myriad ways including nets of varying sizes and complexity, spears, basket traps, and sometimes the bow and arrow, while waterfowl were taken by snare or with the bow and arrow and mussels were gathered in large quantities and steamed on tule mats. Mortars, for the processing of plant foods, were most commonly constructed from hard woods such as oak, although occasionally imported stone specimens were used. Boats, constructed by lashing bundles of tules into a canoe-shaped balsa, were important for hunting, transport of goods and people, and numerous other tasks.

Southern Valley Yokuts habitation areas were most commonly situated in proximity to aquatic resources, particularly along lakeshores, marshes, or at the confluence of two waterways, as these areas were particularly productive for their primary food sources. Because of the abundance and reliability of subsistence resources, Southern Valley Yokuts generally occupied permanent settlements year-round. Notable among Wowol and the groups living in the vicinity of Buena Vista Lake was the construction of large steep-roofed communal residences shared by 10 or more families. These dwellings were constructed of tule reed–woven mats placed over a pole-frame structure, some of which were at least 100 feet long. Other structures included earth-covered sweat lodges and granaries for the storage of fish, roots, seeds, and other foods.

Historic Context

Spanish Period (1769–1822)

Although Spanish, Russian, and British explorers visited parts of California for brief periods between 1529 and 1769, the Spanish period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Missions in the region included San Francisco de Asís (1776), Santa Clara de Asís (1776), San José de Guadalupe (1797 in Alameda County), San Rafael Arcángel (1817 in Marin County), and San Francisco Solano (1823 in Sonoma County).

The first Spaniards arrived in the San Joaquin Valley in 1772, led by Don Pedro Fages who traveled through the Tejon Pass down into the southernmost part of the valley and visited a village in the vicinity of Buena Vista Lake before traveling west to San Luis Obispo. Active exploration of the region by the Spanish began in 1805, when several expeditions entered the San Joaquin Valley including the expedition by Gabriel Moraga in 1806, which reached the San Joaquin and King Rivers and Buena Vista Lake, and the Palomares expedition to the Tulares in 1808, among others.

Mexican Period (1822–1848)

Mexico's separation from the Spanish empire in 1821 and the secularization of the California missions in the 1830s caused further disruptions to Native American populations. Following the establishment of the Mexican Republic, the government seized many of the lands belonging to Native Americans, providing them as parts of larger land grants to affluent Mexican citizens and rancheros. The 1833 Secularization Act passed by the Mexican Congress ordered half of all mission lands to be transferred to Native Americans and the other half to remain in trust and managed by an appointed administrator. These orders were never implemented due to several factors that conspired to prevent Native Americans from regaining their patrimony.

American Period (Post-1848)

California was officially ceded to the United States in 1848, which led to the continued appropriation of Native American territory by ranchers, prospectors, and an increasing number of settlers. The economic drive to promote successful ranching activities within the Central Valley was of particular importance to the continued development, regional stabilization, and western growth of the United States government's authority. While mining had limited direct impact on the San Joaquin Valley, by the mid-nineteenth century, Euro-American miners, who failed when mining lodes to the east, began to move into the area to try their luck at agriculture, ranching, and as farm/ranch hands. From 1850, with the passage of California's Indian Act, until legislative reforms in the late 1880s, state laws provided little actual protections to Native American populations throughout California who often worked on these local ranches and farms. This large influx of people into central California resulted in a large demand for meat and animal byproducts. In the early 1850s, entrepreneurs brought large herds of cattle, sheep, and hogs into the large grazing areas of the Central Valley and the Sierra Foothills.

In 1851, gold was discovered in the Kern River Valley and miners quickly relocated to pan local waterways. When gold yields lessened, miners moved away from the San Joaquin Valley to escape its chronic, cyclical flooding. In 1854, a second large vein was discovered in the Kern River, spurring miners to rework the region's network of rivers, streams, and tributaries. When the gold fields dried up, settlers constructed an expansive canal system to drain the inundated valley and control water distribution for agricultural irrigation. As more water was diverted from rivers to irrigate farmland, lake levels in Tulare, Buena Vista, and Kern Lakes began to drop. The reclaimed, nutrient-rich land was subdivided and developed into residential farmsteads. The influx of people into central California resulted in a large demand for meat and animal byproducts.

A report was commissioned by the United States military based in Monterey to examine the Tulare Valley (present-day San Joaquin Valley) and the areas around Tulare Lake, "… for the purpose of selecting a suitable position for the establishment of a military post in the neighborhood of the Tulare lake" (Derby and Farquhar 1932: 247). In the report, Lt. Derby describes the landscape as the group approached the western edge of Tulare Lake: "The country passed over was a perfect desert, and I found here no forage for the animals but wire grass, the water standing in the tule marshes brackish, and no wood at all" (*Ibid*: 252).

The report includes a description following the group's traverse across a "ridge of sand about one hundred yards in width, and twelve feet above the level of the lake, which divides the water of the northern or Taché from the bed (now nearly dry) of the southern or Ton Taché" (*Ibid*: 252). The ridge sounds similar to the Sand Ridge depicted on topographic maps for the region (Dudek 2025b, Figure 3). The report states:

> *This last is little more than a very extensive swamp, covering the plain for fifteen miles in a southerly direction, and is about ten in width. It is filled with sloughs and small tule lakes, and is of course impassable except with the assistance of boats or rafts. The gradual receding of the water is distinctly marked by the ridges of decayed tule upon its shore, and I was informed, and see no reason to disbelieve, that ten years ago it was nearly as extensive a sheet of water as the northern lake, having been gradually drained by the connecting soughs, and its bed filled by the encroachments of the tule* (*Ibid*: 252-253).

The Project site is located along the margins of the two landscapes described above. Climate variability resulted in fluctuations in annual precipitation that likely would have caused the conditions within the Project site to oscillate between the two prior to the onset of industrial agriculture and irrigation within the San Joaquin Valley.

The Rise of Agriculture and Development of Irrigation (1855–1890)

In 1855, Henry Miller (1827–1916), a butcher from San Francisco, arrived in San Joaquin Valley and purchased 300 head of cattle. Miller integrated his businesses and, as demand skyrocketed, purchased grazing land and breeding stock. In 1857, cattlemen Charles Lux (1823–1887) and Miller incorporated the Pacific Livestock Company, an integrated cattle and meatpacking enterprise, purchased 300,000 acres, and heavily invested in the region's irrigation and agricultural infrastructure. The burgeoning industry attracted migrants who settled in the region permanently. In 1866, the State of California created Kern County, home to 300 residents, from parts of Los Angeles and Tulare Counties. The settlers introduced new crops, experimented with growing methods, and cultivated herds of cattle, sheep, and hogs.

The Southern Pacific Railroad constructed a railway through Kern County in 1870, facilitating population growth, dictating the placement of major cities, and connecting ranching and farming operations to distant markets. Wheat and other cash crops became an important part of the economy and with them came the development of large-scale irrigation systems beginning in the late nineteenth century. As more water was diverted from rivers to irrigate farmland, lake levels in Tulare, Buena Vista, and Kern Lakes began to drop. Continued irrigation, as well as large water infrastructure projects on the rivers supplying the lake, resulted in the lakes effectively drying out, except during exceptionally rainy seasons by the mid-twentieth century.

In 1885, Miller and Lux established Buttonwillow Ranch, a Pacific Livestock Company sub-headquarters, market, and livestock operation. The ranch, located 3 miles west of Buena Vista Slough, was named for the riparian Buttonwillow trees (*Cephalanthus occidentalis californicus*) that flourished in the Kern River valley. The partners also established Buena Vista Farm (located directly south of contemporary State Route (SR) 58, which provided feed for the livestock. Miller

and ranch employees constructed a dam at the south end of Buena Vista Lake (north of Buttonwillow) a 26-mile-long, 50-foot-wide canal west of Buttonwillow Ranch. The "West Side Canal" watered thousands of cattle and irrigated 500,000 acres of experimental alfalfa, wheat, rye, barley, and corn by early 1886. Shortly after the canal became operational, upstream competitors, James Ben Ali Haggin, W. B. Carr, and Lloyd Tevis, diverted the water, cutting off the ranch's supply. *Miller v. Hagan,* heard by the California Supreme Court in 1888, forced the litigants to share water rights. As a result, the two large landowners divided the Kern River's flow into two channels, detrimentally impacting small-scale ranchers downstream that relied on the river's natural course. After the court ruling, Miller constructed the "East Side Canal," which further irrigated Buttonwillow Ranch and Buena Vista Farm while depriving his neighbors and competitors of water.

The Development of Buttonwillow and Rural Residential Infrastructure (Post 1890)

In 1893, Miller donated a large tract of land between Buttonwillow Ranch (north) and Buena Vista Farm (south) for the future townsite of "Buena Vista." In 1895, the Southern Pacific Railroad constructed the McKittrick branch through the community and a Post Office, named "Buttonwillow," was established. In the early 1900s, as Miller entered his mid-80s, he established the Miller and Lux Land Company (despite Lux being deceased) and subdivided sections of his massive holdings to sell as ranchland. As the community grew, both "Buena Vista" and "Buttonwillow" were used by residents, cartographers, and newspapers. After Miller died in 1916, his heirs continued to gradually subdivide plots of land around Buttonwillow Ranch to be sold. In 1924, the Buena Vista Water Storage District was established to manage the area's extensive irrigation and drainage network and, in 1927, land agent C.E. Houchin platted the townsite of Buttonwillow. Residents adopted "Buttonwillow" as the community's name although archival sources continue to refer to "Buena Vista" until approximately 1930. Houchin platted a small grid with residential lots at the town's core and agricultural properties on the lattice's outskirts. Buttonwillow's commercial district fronted (north) McKitterick Bakersfield Highway (extant California SR 85) and the Southern Pacific McKitterick railway. Outlying residential farmsteads were positioned between a complex series of canals including the West Side Canal, East Side Canal, Eighty Foot Ditch, Deep Wells Ditch, Garden Ditch, Corn Camp Ditch, Poplar Grove Ditch (sometimes referred to as the "Arizona Ditch"), and Main Drainage Canal.

On June 11, 1921, the San Joaquin Power Company (SJPC) opened the Midway Steam Plant in Buttonwillow and established power infrastructure in the rural community. The Midway Steam Plant, which supplied 17,000 horsepower units along high-tension lines to local residents, included a boiler room, turbine room, an electrical operating room, and a large retention and cooling pond. By early 1922, the Midway Steam Plant no longer met the energy demands posed by Kern County's growing population. To increase production, SJPC spent $1,250,000 to increase production to double the plant's size and increase its total output to approximately 40,000 units. The Midway Steam Plant continued producing electricity for the region until the late 1940s and the development of nuclear power plants in the region.

The Midway Steam Plant was demolished in 1952, and a major employer left the region. However, Kern County was quickly becoming a major oil producer in California. The oil industry flourished in the mid-twentieth century, as did local agricultural production. Shortly after the industrial boom began, rural, dirt roads between farms and businesses were graded and paved. Local power creation resumed in the late 1960s when Pacific Gas and Electric (PG&E) established the Midway Switching Center. Although increased economic opportunity in the region led to a slight increase in Buttonwillow's population in the late twentieth century and early twenty-first century, the region has retained its rural character.

Existing Cultural Resources

Methods Used to Identify Known Cultural Resources

To identify cultural resources and characterize the proposed Project's potential effects on cultural resources, Dudek completed two surveys, one focused on the historic built environment, while the other consisted of an archaeological investigation within the Project site.

Dudek conducted an intensive-level survey of the Areas of Potential Impacts (APIs) for historic built environment resources on October 19, 2023. The survey documented the historic built resources using field notes, digital photography, close-scale field maps, and aerial photographs. Dudek took specific notes of character defining features, spatial relationships, observed alterations, and any historic landscape features on the property. Staff at the Southern San Joaquin Valley Information Center (SSJVIC) at California State University, Bakersfield completed a CHRIS records search of the Project site and a 1-mile buffer on November 8, 2022, and April 25, 2023. The search included their collection of mapped prehistoric, historical, and built environment resources, Department of Parks and Recreation (DPR) Site Records, technical reports, archival resources, and ethnographic references. Additional consulted sources included the NRHP, California Inventory of Historical Resources/CRHR, California Points of Historical Interest, California Historical Landmarks, and Caltrans Bridge Survey information.

The archeological resource study included an SSJVIC records search, NAHC Sacred Lands File search, historic background research, and a pedestrian survey of the Project site. The records search was conducted at the SSJVIC Southern on November 8, 2022 and included a search of the Project site and a 1-mile radius around the Project site. A supplemental records search was conducted on April 11, 2023. In addition to the records search, Dudek conducted historic research to inform the history of land use within the Project site. This research included review of historic topographic maps and aerial photographs. An intensive-level pedestrian survey of the Project site was conducted between January 17, 2023 and June 18, 2024.

The methodology and results of these efforts are summarized below.

Historic-Period Map Review

Historic aerial photographs of the Project site were available for the years 1952, 1956, 1968, 1984, 1994, 2005, 2009, 2010, 2012, 2014, 2016, 2018, and 2020. Topographic maps including the Project site were available for the years 1855, 1868, 1931, 1932, 1934, 1942, 1943, 1950, 1956, 1957, 1974, 1976, 2012, 2015, 2018, and 2021.

These historic documents indicate that the Project site once was located near a series of marshes, sloughs and wetlands between Lake Tulare and Buena Vista Lake called "Buena Vista Slough." A minor offshoot, Jerry Slough, intersects the Project site within the northern and central portions. Arid plains were located in elevated areas away from the sloughs. Topographic maps from 1931 onward depicted this area as crisscrossed with a system of canals and levees, although the community of Buttonwillow is already present. By 1942, a series of more established roads had made their way into the Project site and surrounding vicinity. The earliest aerial images of the 1950s display sparse agricultural fields located around the Project site, surrounded by seemingly arid land. The community of Buttonwillow also appears to have achieved its current size by 1956. Both maps and aerial images show very little change in the region for the next decades. By 1984, aerial images indicate a larger spread of agricultural fields with more arid regions being turned to farmland. By the 1980s, the region had seemed to take its present form as very little change is seen in aerial images.

Geomorphological Context Review

The ground surface of the Project site has been highly disturbed by previous agricultural and ranching activities. The United States Geological Survey (USGS) characterized deposits in the region as Quaternary alluvium and marine deposits. No major rivers, streams, or drainages flow through the Project site, although the southwestern edge of the Project site is in the location of the slough that flowed between Lake Tulare and the Buena Vista Lake and the north portion of the Project site intersects the Jerry Slough. Although portions of the Project site would have likely been dry grassland, other portions and its general proximity to the important Buena Vista Slough would have made this spot an attractive place to reside while exploiting these resources. The low elevation and level ground at the Project site indicate the area could have been subject to seasonal flooding from the slough, inundating and shifting alluvial sedimentation since the Holocene during wetter years.

The potential for buried pre-Contact archaeological deposits in the Project site has been characterized as ranging from "Moderately low" to "Very High" by the 2010 California Department of Transportation Districts 6 and 9 Geoarchaeological Overview and Assessment. However, such broad analyses must be tempered by local conditions. The Project site is in an area that has a sparse record of pre-Contact occupation indicated by the records search for a large portion of the study area. However, this appears to be a result of the lack of previous intensive pedestrian surveys within the Project site rather than the absence of archaeological resources, as indicated by the results from the current pedestrian survey conducted for this proposed Project. While agricultural fields extensively disturb archaeological deposits, they do not erase them; to the contrary, such activities often bring buried deposits to the surface. Portions of the Project site were observed to contain concentrations of artifacts consistent with pre-Contact and historic-era resource formation.

An historic General Land Office map from 1855 displays the southwestern portion of the Project site within the Buena Vista Slough, a large system of wetlands stretching from Buena Vista Lake, approximately 11 miles to the south, to Lake Tulare, approximately 20 miles to the north. Lake Tulare and Buena Vista Lake were very shallow bodies of water, and the shoreline would increase and decrease dramatically with the rainfall and snowpack in the Sierra Nevada each year. As the edges of the Buena Vista Slough in the southwestern portion of the Project site would have been ever-shifting, it can be inferred that far more of the proposed Project could have been inundated by the slough during wetter times. As such, the entire area at particular times could be productive shoreline. This indicates the portions of the Project site mapped as alluvial slough deposits should be considered at a heightened sensitivity for buried pre-Contact resources. In consideration of the above factors, the sensitivity of the Project site for buried pre-Contact resources regarding geoarchaeology can be divided into "Moderate" and "High."

Absent historical modifications, the area would have been subject to recurring flooding, often on a seasonal basis. Related soils would have been in a constant state of formation and deposition up to present. Areas along the western edge of the Project site are essentially at the edge, and within, the historical Buena Vista Slough. Prior to this, and occupation by humans, the entire Project site would have been within the Buena Vista Lake. All areas of the Project site should be assumed to have the potential to contain buried cultural deposits. During cultural monitoring, sensitivity mapping can be modified or refined as a direct observation of the local conditions is ascertained.

Historic Built Environment Records Search Results

Six properties with built environment resources were identified as over 45 years old within the API (**Table 4.5-5:** *Built Environment Properties Recorded and Evaluated in the API).* The resources include four rural residential properties (Map ID A. 39301 Sullivan Road, Map ID B. 25950 Frey Avenue, Map ID C. 087-010-22, and Map ID D. 33540 Highway 58), the Midway Switching Center (Map ID E), and a Segment of the East Side Canal (Map ID F), as illustrated in **Figure 4.5-1:** *Area for Potential Impacts for Built Environment Resources*.

Table 4.5-1: Built Environment Properties Recorded and Evaluated in the API

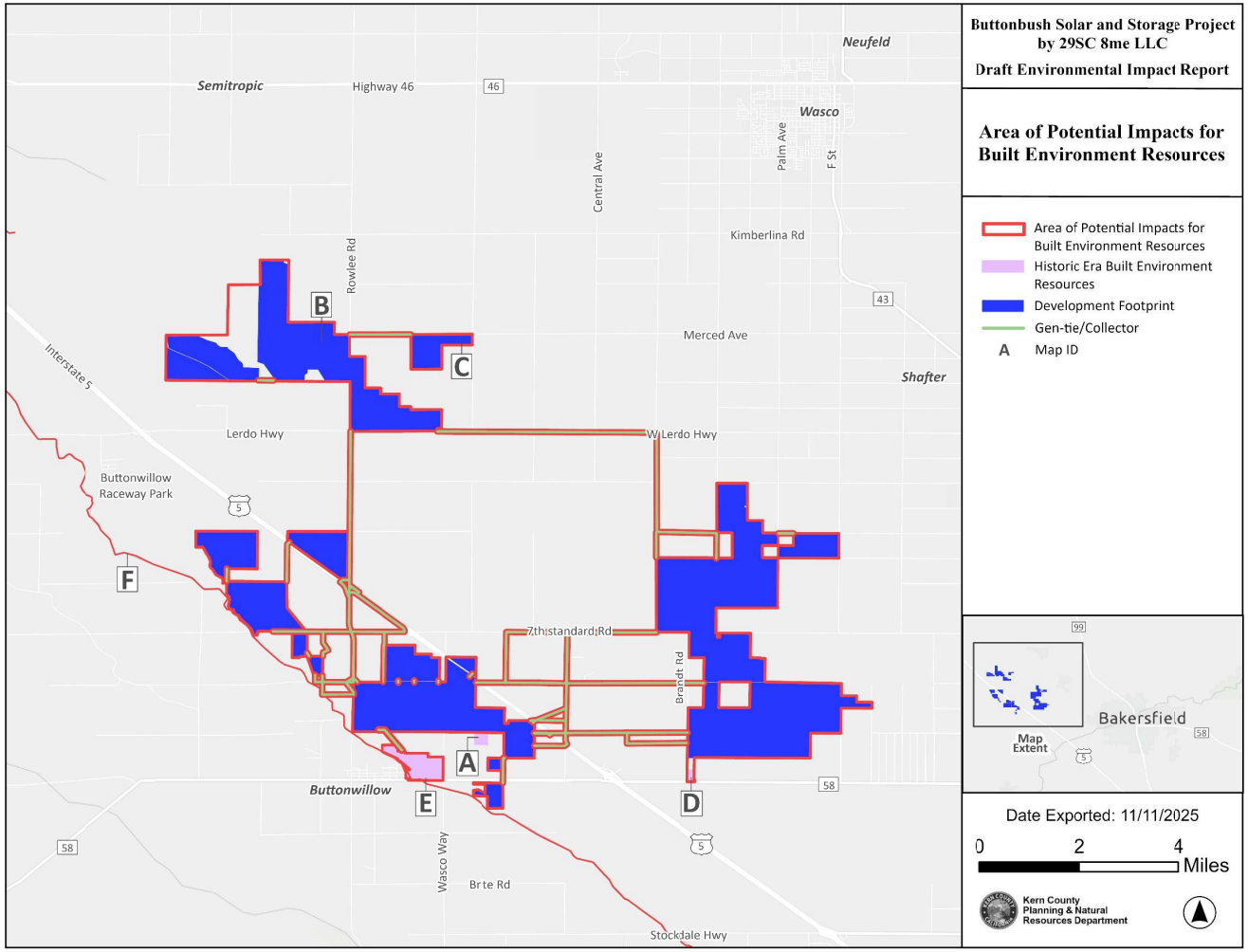
Figure 4.5-1 Map ID	Property Type	Address/APN	Year Built	Primary Numbers (if Previously Evaluated)
A	Residential/ Agricultural	39301 Sullivan Road, 103-100-19-01-4	ca. 1964	N/A
B	Residential/ Agricultural	25950 Frey Avenue, 087-040-04-00-7 087-040-07-00-6	1978	N/A
C	Residential/ Agricultural	No Legal Situs, APN 087-010-22	ca. 1970	N/A
D	Residential/ Agricultural	33540 Highway 58, 103-070-35-00-3	1931	N/A
E	Utilitarian /Electrical Infrastructure	APNs 101-010-02-00-5, 101-010-15-00-3; 101-010-05-00-4; 101-010-04-00-1; 101-020-31-00-2; 101-020-35-00-4; 101-010-10-00-8; 101020-23-00-9; 101-020-27-00-1; 101-020-33-00-8; 101-020-30-00-9; 101-020-28-00-4; 101-010-14-00-0	1968	P-15-009737
F	Utilitarian/Water Infrastructure	No Legal Situs	ca. 1900	P-15-013725

Source: Dudek 2025a

Key: API = Area of Potential Impacts; APN = Assessor's Parcel Number

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Figure 4.5-1: Area for Potential Impacts for Built Environment Resources



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National Register of Historic Places Eligibility Criteria

As described previously, the NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. A property is eligible for the NRHP if it is significant under one or more of the following criteria:

- **Criterion A:** It is associated with events that have made a significant contribution to the broad patterns of our history.
- **Criterion B**: It is associated with the lives of persons who are significant in our past.
- **Criterion C:** It embodies the distinctive characteristics of a type, period, or method of construction; represents the work of a master; possesses high artistic values; or represents a significant and distinguishable entity whose components may lack individual distinction.
- **Criterion D:** It has yielded, or may be likely to yield, information important in prehistory or history.

Cemeteries, birthplaces, or graves of historic figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; and properties that are primarily commemorative in nature are not considered eligible for the NRHP unless they satisfy certain conditions. In general, a resource must be at least 50 years of age to be considered for the NRHP, unless it satisfies a standard of exceptional importance.

California Register of Historic Resources Eligibility Criteria

Similarly, as described in Section 3.4.3, *Regulatory Setting*, the PRC Section 5024.1 outlines the necessary criteria for a resource to be considered eligible for listing in the CRHR and, therefore, a historical resource. The criteria are similar to that of the NRHP, and are generally identified as a property greater than 50 years old and meets one or more of the following criteria:

- **Criterion 1:** Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.
- **Criterion 2:** Associated with the lives of persons important to local, California, or national history.
- **Criterion 3:** Embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of a master or possesses high artistic values.
- **Criterion 4:** Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Newly Recorded Built Environment Resource Evaluations

The six properties with built environment resources are described in further detail below, and correspond to Map IDs illustrated in **Figure 4.5-1:** *Area for Potential Impacts for Built Environment Resources*.

Map ID A: 39301 Sullivan Road

The property at 39301 Sullivan Road (APN 103-100-19-01-4) is a 78-acre rural residential and agricultural property (oriented east to west) that fronts the south boundary of Sullivan Road. The property was developed in ca. 1964 by an unknown owner, and consisted of a residence, three agricultural buildings, and orchards. The property has an association with the agricultural development of the area during the mid-1960s, but research did not indicate that it contributed in any significant way to this pattern of development. The property also lacks an important association with the expansion of rural residential development in the Buttonwillow area. As such, 39301 Sullivan Road, is not eligible under Criteria A and 1.

After being sold, a series of agricultural companies owned the property, including L & K Ranch, Bakersfield (2014–2018), Wells AGC Holdings LLC (2018–2023), and Willow Avenue Investments. Willow Avenue Investments, which purchased the property in 2023, is the current owner. Archival research does not indicate that the original owner and developer, or subsequent owners or occupants, are persons important to our past; therefore it is not eligible under Criteria B or 2. Additionally, the property is not the work of a master architect or builder, does not possess high artistic value, and does not have components that rise to the level of individual distinction. 39301 Sullivan Road is not eligible under Criteria C or 3.

There is no evidence to suggest that 39301 Sullivan Road has the potential to yield information important to state or local history. Therefore, the property is not eligible under Criteria D or 4.

In conclusion, the property at 39301 Sullivan Road, lacks sufficient significance to meet any of the criteria for listing in the NRHP or CRHR. In the specific case of the property at 39301 Sullivan Road, an integrity analysis was not required because the evaluation found that the property lacked the necessary significance to warrant further analysis of its physical and historic integrity. As such, the property does not appear to be a historical resource under CEQA and has been assigned a California Historical Resource Status Code of 6Z (found ineligible for the NRHP, CRHR, or local designation through survey evaluation).

Map ID B: 25950 Frey Avenue

The property at 25950 Frey Avenue (APNs 087-040-04-00-7 and 087-040-07-00-6) has a building complex which includes a residence and two contemporary structures, and is confined to a 3.28-acre parcel (APN 087-040-04-00-7). The parcel is heavily landscaped with mature foliage. Parcel 087-040-07-00-6 is occupied by a fallow agricultural field. 25950 Frey Avenue is a rural residential and agricultural property and is best understood as part of the broad pattern of rural agrarian practices in the Buttonwillow area. Developed in 1978 as a single-family residence, the site possesses an association with the agricultural practices of the area during the late-1970s, but

research did not indicate that it contributed in any significant way to this pattern of development. The property also lacks an important association with the expansion of rural residential development in the Buttonwillow area. As such, 25950 Frey Avenue, is not eligible under Criteria A or 1.

25950 Frey Avenue was developed by an unidentified property owner in 1978. Per the Kern County Assessor-Recorder Office (KCAR), the original property owners maintained the orchards until the mid-1990s. In ca. 1995, Robert William Tracy and Elizabeth Ann Tracy purchased the property. In 2002, the Tracy family placed the property in a revocable trust, which they continue to maintain. In ca. 2000, the Tracy family added a Gazebo, to the property. In 2008, the residence was remodeled and a garage unit was added to the building's southwest corner. While a number of individuals have occupied the property, research did not indicate that any of these individuals made a significant contribution to history. Due to a lack of identified significant associations with important persons in history, 25950 Frey Avenue is not eligible under Criteria B or 2. Additionally, archival research indicates that the property was not the work of a master architect or builder, does not possess high artistic value, and does not have components that rise to the level of individual distinction. Therefore, 25950 Frey Avenue is not eligible under Criteria C or 3.

There is no evidence to suggest that 25950 Frey Avenue has the potential to yield information important to state or local history. As such, the property is not eligible under Criteria D or 4.

In conclusion, 25950 Frey Avenue does not appear eligible for listing in the NRHP or CRHR as a historic resource due to a lack of historical associations and architectural merit. As such, the property does not appear to be a historical resource under CEQA and has been assigned a California Historical Resource Status Code of 6Z (found ineligible for the NRHP, CRHR, or local designation through survey evaluation).

Map ID C: APN 087-010-22 (No Legal Situs)

Map ID C, APN 087-010-22 (no legal situs), is a 66-acre, single-family residential and agricultural property. The rectangular parcel, oriented east–west, fronts the south side of Merced Avenue and was between 1955-1977. The residence consists of a one-story rectangular house adjacent to Merced Avenue. The residence has an attached carport, and a U-shaped, unpaved driveway that loops around the residence, separating the building from the surrounding almond orchard. The mature orchard takes up most of the parcel and includes a well located north of the orchard and directly south of Merced Avenue. Several alterations were made to the property since its original construction. The property is best understood as part of the broad pattern of rural agrarian practices in the Buttonwillow area and possesses an association with the agricultural development of the area during the mid-twentieth century. However, research did not indicate that it contributed in any significant way to this pattern of development. The property also lacks an important association with the expansion of rural residential development in the Buttonwillow area. As such, Map ID C, APN 087-010-22, is not eligible under Criteria A or 1.

The property was developed as a residential property and almond orchard, including irrigation infrastructure, between 1955-1977 by an unidentified property owner. The property and orchards

were maintained by the original owner until the early twenty-first century, after which it was sold to unidentified owners in 2010. In 2022, Erika and Brian J. Romanini purchased the property. Archival research does not indicate that the original owner and developer, or subsequent owners or occupants, are persons important to our past; therefore, it is not eligible under Criteria B or 2.

Although the property demonstrates key characteristics of a rural agricultural property-type, including agrarian land use for commercial activities, patterns of spatial organization, irrigation infrastructure, and vehicular and pedestrian circulation networks, the property is not a particularly distinguished example of this property type. The property located on APN 087-010-22 does not possess high artistic value and is not a significant and distinguishable entity whose components exhibit individual distinction. Additionally, archival research indicates that the property was not the work of a master architect or builder, does not possess high artistic value, and does not have components that rise to the level of individual distinction. Map ID C, APN 087-010-22, is not eligible under Criteria C or 3.

There is no evidence to suggest that Map ID C, APN 087-010-22, has the potential to yield information important to state or local history. Therefore, the property is not eligible under Criteria D or 4.

In conclusion, the property at Map ID C lacks sufficient significance to meet any of the criteria for listing in the NRHP or CRHR. In the specific case of the property at Map ID C, an integrity analysis was not required because the evaluation found that the property lacked the necessary significance to warrant further analysis of its physical and historic integrity. Consequently, the evaluation determined that the subject property is not a historic property based on the NRHP criteria outlined in 36 Code of Federal Regulations (CFR) Section 60.4, either individually or as a contributing element to an existing or potential historic district, nor is it a historical resource for the purposes of CEQA.

Map ID D: 33540 Highway 58

33540 Highway 58 (APN 103-070-35-00-3) is a 19-acre residential and agricultural property that an unidentified owner constructed in 1931. The property is comprised of a roughly rectangular 19-acre parcel developed with a residence, barn, and field dedicated to row crops. The residence is a one-story building with an irregular footprint that has been expanded over time. Aerial research indicates that to the rear of the residence there is a rectangular pool, temporary octagonal shelter, and single-story rectangular barn. 33540 Highway 58 is best understood as part of the broad pattern of rural agrarian practices in the Buttonwillow area. Although the property possesses an association with the agricultural development of the area during the early- and mid-twentieth century, research did not indicate that it contributed in any significant way to this pattern of development. The property also lacks an important association with the expansion of rural residential development in the Buttonwillow area. As such, Map ID D, 33540 Highway 58, is not eligible under Criteria A or 1.

Map ID D, 33540 Highway 58 (APN 103-070-35-00-3), is a residential and agricultural property constructed in 1931 by an unidentified owner. Michael Bushnell purchased the property in 2000

before selling the parcel to Highway 58 LLC in 2020. Archival research did not yield information about subsequent property owners or indicate that the original owner and developer, or subsequent owners or occupants, are persons important to our past, and property is not associated with any specific persons known to be historically important figures at the national, state, or local level. While a number of individuals have occupied the property either as owners or renters from the time of its construction to the present day, research did not indicate that any of these individuals made a significant contribution to history. Due to a lack of identified significant associations with important persons in history, 33540 Highway 58, is not eligible under Criteria B or 2. Additionally, the property is not the work of a master architect or builder, does not possess high artistic value, and does not exhibit components that rise to the level of individual distinction. 33540 Highway 58 is not eligible under Criteria C or 3.

There is no evidence to suggest that 33540 Highway 58 has the potential to yield information important to state or local history. Therefore, the property is not eligible under Criteria D or 4.

In conclusion, the property at 33540 Highway 58 lacks sufficient significance to meet any of the criteria for listing in the NRHP or CRHR. In the specific case of the property, an integrity analysis was not required because the evaluation found that the property lacked the necessary significance to warrant further analysis of its physical and historic integrity. Consequently, the evaluation determined that the subject property is not a historic property based on the NRHP criteria outlined in 36 CFR Section 60.4, either individually or as a contributing element to an existing or potential historic district, nor is it a historical resource for the purposes of CEQA.

Previously Recorded Resources

Map ID E: Midway Switching Center

The PG&E Midway Switching Station comprises two legal addresses—2205 Wasco Way and 40534 Highway 58 — and covers 13 Tax Assessor's Parcels (101-010-02-00-5, 101-010-15-00-3, 101-010-05-00-4, 101-010-04-00-1, 101-020- 31-00-2, 101-020-35-00-4, 101-010-10-00-8, 101-020-20-00-0, 101020-23-00-9, 101-020-27-00-1, 101-020- 33-00-8, 101-020-30-00-9, and 101-020-09-00-90).

The Midway Switching Center is an electric bulk power transmission and step-down switching facility located directly east of Buttonwillow, a 1,340-resident Census Designated Place, in Kern County, California. The substation is bound by the Buttonwillow Recreation and Park District and East Side Canal to the west, agricultural properties and orchards to the north, Wasco Way to the east, and Highway 58 to the south. The 247.47-acre, sprawling complex has an irregular footprint surrounded by a tall wall constructed from thick, vertical wood beams. The property is accessible via four oversized metal gates on the south and east sides of the complex.

The Midway Switching Center features a control house with a one-story building with a rectangular plan, raised concrete foundation, and a flat roof. Clusters of electrical equipment include a series of circuit breakers, switch arresters, and generator-battery modules that divide incoming energy among multiple outgoing transmission lines. Vertical metal latticework structures support busbars,

shield wires, and lightening arrestors that divert lightning strikes away from the substation's electrical infrastructure. Additional infrastructure includes transmission wire, lattice steel towers, lattice steel poles, light duty steel poles, and wood poles.

Electrical infrastructure, including transmission lines and substations, have outdoor equipment and standardized structures that are routinely maintained. There are no observed alterations visible from the right-of-way, and construction/maintenance records could not be obtained.

Property Type: Electrical Infrastructure

PG&E uses a comprehensive management plan (HEIMP) to assist in the identification, evaluation, and treatment of their historic-era electrical infrastructure. The HEIMP presents a comprehensive historic context, related property types, a framework for identification and evaluation, and management plan implementation strategies. The historic context outlined in the HEIMP provides an in-depth context of PG&E's history since its establishment in 1905. Within this context, the HEIMP outlines four major significance themes to apply under each of the evaluation criteria of the NRHP and CRHR. These include the following:

- The role of Corporate Organization in facility development and expansion.
- The role of Technological Innovation in electrical development and consumption.
- The role of Architectural Treatment and design in facility development.
- The role of electrical development in California's Community Development.

According to the HEIMP, the substation within the proposed Project area—the Midway Switching Center—is one of 948 PG&E substations that facilitate the transmission of electricity from generating facilities to consumers.

Discussion of Significance and Integrity

The Midway Switching Center, which features components constructed in 1921 and 1968, was constructed to provide power to rural residents in Kern County. The Control Building (extant 1921 resource) and the infrastructure associated with the 1968 Midway Switching Center (Map ID E) are representative of a massive investment in the development and transmission of electrical power. Archival research does not indicate that Map ID E initiated or significantly contributed to agricultural development in, or around, Buttonwillow. Although the establishment of Map ID E in 1968 contributed to the region's economy and industry, the Midway Switching Center is not an electrical substation that made a unique or significant contribution to the region's commercial or industrial sectors. The Midway Switching Center does not appear to be associated with any extraordinary events or events occurring within the context of electrical infrastructure development, nor does it have a significant association with the broad patterns of history. Therefore, the Midway Switching Center is not eligible under Criteria A or 1. Additionally, archival research does not indicate that an important individual conducted significant work at the Midway Switching Center (Map ID E) and, therefore, this property is not eligible under Criteria B or 2.

Extant Map ID E, Midway Switching Center, is a standard, electrical substation consistent with PG&E's midcentury design. Individual features, including the 1921 Control House, are reflective of resource types commonly used for utilitarian purposes. The Midway Switching Center (Map ID E) and its individual components are undistinguished examples of this property type. Map ID E does not possess high artistic value, nor is it a significant and distinguishable entity whose components exhibit individual distinction. As such, the property is not eligible under Criteria C or 3.

There is no evidence to suggest that the Midway Switching Center has the potential to yield information important to state or local history. Therefore, the property is not eligible under Criteria D or 4.

In conclusion, the Midway Switching Center does not appear eligible for listing in the NRHP or CRHR as a historic resource due to a lack of historical associations and architectural merit. As such, the Midway Switching Center does not appear to be a historical resource under CEQA and has been assigned a California Historical Resource Status Code of 6Z (found ineligible for the NRHP, CRHR, or local designation through survey evaluation).

Map ID F: Segment of the East Side Canal

The 0.38-mile segment of the (27-mile) East Side Canal, a linear resource associated with the East Side and All-American Canal system, consists of a concrete-lined water conveyance structure with a trapezoidal shape, steep sides, and a flat bottom. The top of the canal is approximately 12 feet deep. The top of the canal is between 10 and 20 feet wide while the bottom is approximately 6 feet wide. The canal right-of-way—the reserved land on either side of the depression—totals approximately 100 feet wide.

Map ID F, Segment of the East Side Canal, was originally constructed in ca. 1900 to provide water to Buttonwillow Ranch, owned by Miller and Lux. When the original canal was constructed, it was earthen-lined, 25 feet wide, and 3 to 5 feet deep. In ca. 1920, after both business partners had died and the ranch changed hands, the sections of the East Side Canal, including the segment in the Project site Map ID F were realigned and enlarged to triple its water-carrying capacity. In 1924, the Buena Vista Water Storage District was established to manage the region's infrastructure and took ownership of the earthen-lined, 27-mile-long East Side Canal. After an unprecedented amount of rainfall flooded the Buena Vista Water Storage District in 1935, the East Side Canal, including Map ID F underwent a series of improvements. Over the length of the entire canal, new culverts, drains, ditches, bridges, weirs, and management systems were constructed. Several segments were excavated and lined in concrete. In 1943, the Buena Vista Water Storage District implemented a canal maintenance program that provided routine maintenance to the system every two years.

Property Type: Water Infrastructure

Early Euro-American settlement period developed water infrastructure in areas of the arid west with mining and agriculture along water courses and passes through the Sierra Nevada. Diversion and irrigation ditches were constructed from river and stream waters to support mills and individual farmers. Beginning in 1903, the United States Reclamation Service (later the Bureau of

Reclamation) began federal investment in irrigation services throughout the West, and construction of these large-scale irrigation projects allowed for population increases in rural areas. Examples of water infrastructure include main water lines, wells, pumping stations, treatment plants, stormwater drains, sewer drains, dams, and levees. Water infrastructure could contain closed features, such as underground pipes, wells, tanks, and drains, or it could be constructed near ground level, such as canals, laterals, and ditches. Water delivery and irrigation systems could include ancillary features such as bridges, checks, and flumes. Materials used to create water infrastructure systems, for either water transportation or water storage, include wood, metal, steel, and, more recently, industrial-use plastics.

Character-defining features are the specific physical characteristics of data requirements that an individual property must possess to retain integrity. Key character-defining features of water infrastructure often include the following:

- Alignment and system connectivity of its original construction
- Primary physical and operational components (laterals, flumes, canals)
- Connectivity to/association with power-generating hydroelectric dams and powerhouses

Discussion of Significance and Evaluation

In 2001, the Bureau of Land Management determined the All-American Canal is eligible as a historic district under Criteria A, C, 1, and 3. According to the report, the All-American Canal was found to be significant on local, state, and national levels due to its association with major federal public works projects. All elements of the canal were determined to be significant contributing elements of a district even if they are less than 50 years old. The Bureau of Land Management stated that additional research is required to determine if elements are contributory, prior to any NRHP nomination submittals. The All-American Canal is an ongoing and vital element of Kern County's infrastructure that, since its construction, has required regular maintenance and upgrading.

Map ID F, Segment of the Eastside Canal, was originally documented in separate DPR 523 Forms by JRP Historical Consulting LLC, and ESA 2009. Neither firm evaluated the resource. In 2013, ArchaeoPaleo Resources also recorded the subject segment but did not evaluate the resource's significance due to a perceived lack of integrity. In a subsequent 2013 documentation effort, Historian Linda Akyuz evaluated the resource and determined that, although the canal has played an important role within California's agricultural history, the subject segment is a contemporary realignment of the canal. Additionally, the realigned concrete-clad canal was constructed wider and deeper than the original earthen East Side Canal. As such, Akyuz recommended that the subject segment of the East Side Canal be found ineligible for recordation in the NRHP and CRHR (6Z: recommended ineligible through a survey evaluation).

In October 2023, Dudek revisited a portion of the East Side Main Canal adjacent to the proposed Project API and observed minimal, maintenance-based alterations since the last recordation in 2013. Dudek concurred with the previous findings that the canal does not meet the criteria for listing in the NRHP or CRHR due to lack of integrity. Although the 0.38-mile subject Segment of

the East Side Canal has an association with the prominent landowners Henry Miller (1827–1916) and Charles Lux (1823–1887) and contributed to the agricultural development of the area, it no longer reflects its original construction as it existed during the period from ca 1900 to ca 1920. In ca 1920, ownership of the canal changed and the structure was realigned and enlarged to triple its water-carrying capacity. Dudek also concluded—as a result of the current study, and in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines and the criteria outlined in PRC Section 5024.1—that the segment of the Westside Main Canal is not a historical resource for the purposes of CEQA. Dudek assigned the segment of the Westside Main Canal a 6Z California Historical Resource status code.

Consequently, the subject property is not a historic property based on the NRHP criteria outlined in 36 CFR Section 60.4, individually or as a contributing element to an existing or potential historic district. Similarly, the evaluation also concludes that the subject property is not a historical resource for the purposes of CEQA as defined under PRC Section 5024.1 and 14 CCR Section 15064.5(a), either individually or as a contributing element to an existing or potential historic district.

Historic Built Environment Findings and Conclusions

Dudek evaluated the API in accordance with Section 15064.5 (a)(2)-(3) of the CEQA Guidelines and using the criteria outlined in Section 5024.1 of the PRC. Dudek concludes that the properties evaluated within the API do not appear eligible for listing in the NRHP or CRHR resources due to a lack of significance. As such, no properties within the API are considered to be historical resources under CEQA (**Table 4.5-2:** *Summary of Significance Evaluations and Findings*).

Table 4.5-2: Summary of Significance Evaluations and Findings

Map ID	Resource/Address	Year Built	Primary Number*	NRHP/CRHR Eligibility	CHR Status Code
Newly Identified Resources in the API					
A	Residence and farm. 39301 Sullivan Road	ca. 1964	N/A	Not Eligible	6Z
B	Residence. 25950 Frey Avenue	1978	N/A	Not Eligible	6Z
C	Residence and farm. No Legal Situs. APN 087-010-22	ca. 1970	N/A	Not Eligible	6Z
D	Residence and farm. 33540 Highway 58	1931	N/A	Not Eligible	6Z
Previously Recorded Resources in the API					
E	Midway Switching Center (PG&E Substation). 2205 Wasco Way, 40531 Highway 5	ca.1921; 1968	P-15-009737	Not Eligible	6Z
F	East Side Canal.	ca. 1900	P-15-013725	Not Eligible	6Z

Key: APN = Assessor's Parcel Number; API = Area of Potential Impacts; ca. = circa; CHR = California Historical Resources [Status Code]; NRHP = National Register of Historic Places; CRHR = California Register of Historical Resources; 6Z = Found ineligible for NR, CR, or local designation through survey evaluation.

Archaeology Records Search Results

A records search was completed for the Project site and a 1-mile buffer by staff at the SSJVIC at California State University, Bakersfield, on November 8, 2022. A supplemental records search was conducted to incorporate revisions to the Study Area on April 11, 2023. The records searches identified 72 previous studies performed within the records search area. Of these, 40 studies have covered a portion of the Project site.

Table 4.5-3: Previous Cultural Resource Studies Within 1 Mile of the Study Area

Report ID	Year	Author(s)	Title
KE-00866	1992	Parr, Robert E. and Osborne, Richard	Archaeological Survey Report for the Proposed Route Adoption Study on Highway 58, Bakersfield, Kern County, California
KE-01266	1987	Schiffman, Robert A	Archaeological Investigation for 60 Acre Parcel by Rowlee Road and Merced Ave, Kern County, California
KE-01485	1982	Schiffman, Robert A. and Monday, Nyle C.	Archaeological Evaluation for the Proposed Belridge Field Cogeneration Plant, Kern County, California
KE-01733	1991	Valdez, Sharynn-Marie	An Archaeological Assessment of 40 Acres of Land Northeast of Buttonwillow, Kern County, California
KE-02391	1999	Jackson, Thomas L. and Shapiro, William A.	Cultural Resources Inventory for the Proposed Texaco Sunrise Cogeneration and Power Project: Addendum for Route B and Valley Acres Substation Surveys
KE-02452	2000	Unknown	Construct and Operate Western MSCC Project (See KE2931)
KE-02527	2001	Foster, John M.	Archaeological Survey for the CalPeak #3 Project, Midway Kern County, California
KE-02584	2001	Christy, Juliet	Archaeological Investigation of the Energy Works Buttonwillow Project, Kern County, CA
KE-02717	2002	Culleton, Brendan and Jackson, Thomas L.	Cultural Resources Inventory, Evaluation, and Mitigation Plan for the Transmission Line (Route 1B), Elk Hills Power Project (99-AFC- 1): Addendum to the Elk Hills Power Project Cultural Resources Monitoring and Mitigation Plan
KE-02740	2002	Casdorph, Cheryl	Draft Environmental Impact Report for Vanderham Dairy
KE-02873	2001	Unknown	Los Banos-Gates 500 kV Transmission Project: Draft Supplemental Environmental Impact Report [Cultural Resources Section]
KE-03027	2004	Clark, Jorie	Tulare Lake Basin Segment: Goose Lake Perimeter Slough Water
KE-03045	2003	Jackson, Thomas	Final Cultural Resources Report for the Sunrise Power Project Phase I
KE-03691	2008	Gorden, Mary A.	Archaeological Reconnaissance Survey of the Perimeter at the Buttonwillow Ecological Reserve
KE-03777	2010	Palm-Leach, Laura, Brandy, Paul, King, Jay, Mikkelsen, Pat, Seil, Libby, Hartman, Lindsay, Bradeen, Jill, Larson, Bryan, Freeman, Joseph, Costello, Julia, Rosenthal, Jeffrey, and Jones, Deborah	Cultural Resources Inventory of Caltrans District 6 Rural Conventional Highways in Fresno, Western Kern, Kings, Madera, and Tulare Counties Summary of Methods and Findings

Table 4.5-3: Previous Cultural Resource Studies Within 1 Mile of the Study Area

Report ID	Year	Author(s)	Title
KE-03838	2009	Romani, John F.	Improvements to Lerdo Highway from Interstate 5 East to Poplar Avenue and the Shafter City Limits (Approximately 13 Miles), Kern County, California
KE-04512	2013	Romani, Gwen R.	Archaeological Survey Report Improvements to Elk Hills Road, Skyline Road to State Route 58, Kern County, California
KE-04736	2015	Laurie, Leroy and Gibson, Heather	Archaeological Survey Report for the Improvements to Rowlee Road from Lerdo Highway to State Route 46, Kern County, California
KE-04883	2017	Roper, C. Kristina	Historic Resources Compliance Report Interstate 5 Vehicle Detection Systems at 18 Locations in Kern, Kings, and Fresno Counties, California
KE-04883A	2017	Roper, C. Kristina	Archaeological Survey Report Interstate 5 Vehicle Detection Systems at 18 Locations in Kern, Kings, and Fresno Counties, California
KE-04883B	2017	Young, Craig D	Geoarchaeological Investigation for Interstate 5 VDS in Kern, Kings, and Fresno Counties
KE-04884	2017	Roper, C. Kristina	Historic Resources Compliance Report Interstate 5 Vehicle Detection Systems at 21 Locations in Kern County, California
KE-04884A	2017	Roper, C. Kristina	Archaeological Survey Report Interstate 5 Vehicle Detection Systems at 21 Locations in Kern County, California

The records searches identified 12 previously recorded cultural resources within the Project site and 47 cultural resources within 1 mile of the Study Area (**Table 4.5-4:** *Previously Recorded Cultural Resources Within 1 Mile of the Study Area*). Previously recorded resources intersecting the Project site limits include three pre-Contact sites, one historic era refuse scatter, one razed historic era ranch, three pre-Contact isolates, and four existing historic era structures/ features/facilities. These resources are summarized in greater detail below.

Table 4.5-4: Previously Recorded Cultural Resources Within 1 Mile of the Study Area

Primary Number	Trinomial	Name	Type	Age	Attributes
Previously Recorded Sites Intersecting the Study Area					
P-15-000324	CA-KER-000324	—	Site	Pre-Contact	Lithic scatter; Burials; Habitation debris
P-15-000325	CA-KER-000325	—	Site	Pre-Contact	Lithic Scatter; Habitation debris; Freshwater shell
P-15-004347	CA-KER-00416H	GD-1	Site	Historic	Privies/dumps/trash scatters

Table 4.5-4: Previously Recorded Cultural Resources Within 1 Mile of the Study Area

Primary Number	Trinomial	Name	Type	Age	Attributes
P-15-009737	—	PL-6	Substation	Historic	Foundations/structure pads; Privies/dumps/trash scatters; Standing structures; Public utility building
P-15-009738	—	PL-7	Ranch / Site	Historic	Privies/dumps/trash scatters; Machinery; Standing structures; Farm/ranch
P-15-013725	CA-KER-007701H	JKE-001; East Side Canal	Canal	Historic	Canal/aqueduct
P-15-020012	CA-KER-010921	CRM TECH 3475-1	Site	Pre-Contact	Lithic scatter; Ground stone
P-15-020558	—	Interstate 5; Golden State Freeway	Road	Historic	Roads/trails/railroad grades; Highway/trail
P-15-021385	—	CRM TECH 3856-1	Isolate	Pre-Contact	Isolated CCS debitage
P-15-021386	—	CRM TECH 3856-2	Isolate	Pre-Contact	Isolated CCS debitage
P-15-021387	—	CRM TECH 3856-3	Isolate	Pre-Contact	Isolated CCS debitage
P-15-021388	—	Buttonwillow Wastewater Treatment Plant (WWTP)	Structure	Historic	Public utility building
Previously Recorded Sites Within 1 Mile of the Study Area					
P-15-000052	CA-KER-000052	#17 Gifford and Schenck	Site	Pre-Contact	Steatite sherds
P-15-000053	CA-KER-000053	#18 Gifford and Schenck	Site	Pre-Contact	Burials
P-15-000056	CA-KER-000056	#29 Gifford and Schenck	Other	Pre-Contact, Unknown	No description provided
P-15-000057	CA-KER-000057	#30 Gifford and Schenck	Site, Element of district	Pre-Contact	Burials
P-15-000611	CA-KER-000611	B-1	Site	Pre-Contact	Lithic scatter; Bone and shell fragments
P-15-001847	CA-KER-001847	Leland Freeborn #2	Site	Pre-Contact	Lithic scatter; Habitation debris

Table 4.5-4: Previously Recorded Cultural Resources Within 1 Mile of the Study Area

Primary Number	Trinomial	Name	Type	Age	Attributes
P-15-002050	CA-KER-002050H	Southern Pacific Railroad, McKittrick Branch; Midway-Sunset 2; KS-1; FCG27; Old Southern Pacific Railroad Grade; Asphalto Line of the South Pacific Railroad	Structure, Site	Historic	Foundations/structure pads; Privies/dumps/trash scatters; Road/trail/railroad bed; Engineering structure; Railroad depot; Highway/trail; Standing structures; Wooden structural remains; Bridge; Culvert
P-15-002694	CA-KER-002694	Site #1	Site	Pre-Contact	Lithic scatter
P-15-002707	CA-KER-002707	Site #2	Site	Pre-Contact	Lithic scatter
P-15-003058	CA-KER-003058	Site #4	Site	Pre-Contact	Lithic scatter
P-15-003093	CA-KER-003093	GDE-912	Site	Pre-Contact	Lithic scatter
P-15-003102	CA-KER-003102	GDE-914	Site	Pre-Contact	Lithic scatter
P-15-003103	CA-KER-003103	GDE-914	Site	Pre-Contact	Lithic scatter
P-15-003104	CA-KER-003104	GDE-915	Site	Pre-Contact	Lithic scatter
P-15-003107	CA-KER-003107	GDE-918	Site	Pre-Contact	Lithic scatter
P-15-003108	CA-KER-003108	GDE-919	Site	Pre-Contact	Lithic scatter; Habitation debris
P-15-003109	CA-KER-003109H	GDE-920H	Site	Historic	Foundations/structure pads; Roads/trails/ railroad grades; Privies/dumps/trash scatters
P-15-003110	CA-KER-003110	GDE-921	Site	Pre-Contact	Lithic scatter
P-15-003114	CA-KER-003114	GDE-927	Site	Pre-Contact	Lithic scatter
P-15-003115	CA-KER-003115	GDE-928	Site	Pre-Contact	Lithic scatter
P-15-003355	CA-KER-003355H	J.G. – 1	Site	Pre-Contact; Historic	Lithic scatter; Shell button
P-15-003356	CA-KER-003356H	Sharynn's Site	Site	Historic	Privies/dumps/trash scatters

Table 4.5-4: Previously Recorded Cultural Resources Within 1 Mile of the Study Area

Primary Number	Trinomial	Name	Type	Age	Attributes
P-15-003913	CA-KER-003913	—	Site	Historic	Fill deposit
P-15-004014	CA-KER-004013	FCG-1; ISO-SD1	Site	Pre-Contact	Lithic scatter; Burials; Habitation debris
P-15-004621	—	PMI-1	Other	Pre-Contact	Lithic scatter
P-15-005702	—	IF-KER-1760H	Other	Historic	Isolate green glass sherds
P-15-008251	—	OHP Property Number – 068783; OTIS Resource Number – 470742	Building	Historic	Single family property
P-15-008252	—	OHP Property Number – 067526; OTIS Resource Number – 469648	Building	Historic	Single family property
P-15-009736	—	PL-5	Site	Pre-Contact	Lithic scatter; Habitation debris
P-15-009861	—	Caltrans-7; IF-KER-678	Other	Pre-Contact	Lithic scatter
P-15-009862	—	Caltrans-11; IF-KER-689	Other	Pre-Contact	Lithic scatter
P-15-009863	—	Caltrans-12; IF-KER-690	Other	Pre-Contact	Lithic scatter
P-15-010690	CA-KER-006231	PL-EHPP-6	Site	Pre-Contact	Lithic scatter
P-15-013726	CA-KER-007702H	JKE-002; Main Drain Canal	Structure	Historic	Water conveyance system; Canal/aqueduct
P-15-016999	—	Segment of Eastside Cutoff	Structure	Historic	Canal/aqueduct
P-15-017682	—	Arizona Ditch	Structure	Historic	Water conveyance system; Canal/aqueduct
P-15-017683	—	Deep Wells Ditch	Structure	Historic	Water conveyance system; Canal/aqueduct

Table 4.5-4: Previously Recorded Cultural Resources Within 1 Mile of the Study Area

Primary Number	Trinomial	Name	Type	Age	Attributes
P-15-017684	—	Eighty Foot Ditch; OTIS Resource Number – 684947	Structure	Historic	Water conveyance system
P-15-017685	—	Florida Drain	Structure	Historic	Water conveyance system
P-15-020558	—	Interstate 5	Site	Historic	Road; highway

P-15-000324 (CA-KER-000324)

CA-KER-000324 was first and last recorded in June 1970. The resource covers a 100' × 50' area and is described as a cemetery on a low knoll. At least two adult skeletons were exposed prior to archaeological investigation, and Olivella shell beads and stone chips (chert, chalcedony, obsidian) are also associated with the site. Levee-building may have removed a portion of the site, and there was expected to be a greater level of destruction due to land cultivation. Excavation was recommended for this resource, the results of which are described below in *Archaeology Field Survey Results*. Soils within the site and surrounding area are a dark silty loam, and landscape consists of grasslands. It is unknown if the site has been evaluated for either the NRHP or CRHR at this time.

P-15-000325 (CA-KER-000325)

CA-KER-000325 was first and last recorded in June 1970. The resource covers a 200' × 400' area. A portion of the mapped site boundary intersects the Project site in an area where extensive grading has occurred during the development and maintenance of an agricultural staging area. The resource is described as a series of small campsites on low knolls containing 32 Olivella shell beads, three projectile point fragments, a steatite bead, steatite reel fragment, utilized flake, and stone chips (chert, chalcedony, obsidian). There are heavy concentrations of freshwater clam shell located at several of the camping places. The surrounding landscape consists of sagebrush and grasslands. The site has not been evaluated for either the NRHP or CRHR at this time.

P-15-004347

This resource is a former dairy with a diffuse scatter of historic artifacts. The dairy operated from the late 1930s into the 1980s. No structural remains are present. Artifacts include heavily patinated glass sherds, decorated and undecorated stoneware ceramics, concrete and brick fragments, and scrap iron. The site was recorded in 1994 by the California State University-Bakersfield Cultural Resource Facility.

P-15-009737

P-15-009737 was first recorded in May 1999. The resource covers an area of 51.2 acres. Features of the site include three standing structures (two control room buildings and residential complex), a foundation, the remains of a recreational park, and an artifact scatter associated with the San Joaquin Power Company's Midway Steam Plant which was constructed between 1921-1922 and dismantled in 1954. The portion of the resource intersecting the Project site has been evaluated as not eligible for NRHP/CRHR listing. The remainder of the resource outside the Project site has not been evaluated for NRHP/CRHR but is considered likely not eligible for either based on the current documentation. P-15-009738

P-15-009738 was first recorded in May 1999. The resource covers an area of 29.6 acres. The site consists of the remains of a feed mill and cattle ranch complex. Features include several standing and partially collapsed structures thought to be dated between 1928 and 1954, a feed mill with related tanks and trough system, corrals, concrete slabs related to hay storage, an occupied trailer, miscellaneous farming and ranching equipment, and trash scatter extending across Wasco Road containing glass and ceramic fragments dating to the 1920s-1960s. To the north of the artifact scatter on the east side of Wasco Road there is a wide scatter of isolate chert flakes and freshwater mussel shell fragments. The surrounding landscape is described as sagebrush and grasslands with the exception of the area on the east side of Wasco Avenue being used for cotton cultivation. The portion of the resource intersecting the Project site has been evaluated as not eligible for NRHP/CRHR listing. The remainder of the resource outside the Project site has not been evaluated for NRHP/CRHR but is considered likely not eligible for either based on the current documentation.

P-15-013725 (CA-KER-007701H)

CA-KER-007701H, also referred to as a segment of the East Side Canal, is a northwest-southeast running canal. The historic canal was first recorded in 2009 by Melvin and Flores of JRP Historical Consulting and described as being originally constructed ca. 1870 by the Miller and Lux Company as the primary irrigation canal for their Buttonwillow Ranch. The entire length of the canal is approximately 26.7 miles, where approximately 8 miles of which runs along or near the Project site. While the East Side Canal has played an important role within California's agricultural history, the subject segment, based on archival evidence, is a contemporary realignment of the canal. The realigned concrete-lined canal is wider and deeper than the original earthen East Side Canal. Therefore, Akyuz recommended that the subject segment of the East Side Canal be found ineligible for recordation in the NRHP and CRHR (6Z: recommended ineligible for survey evaluation).

P-15-020012

This site consists of a large, sparse artifact scatter with lithic and ground stone. The site measures 340 m × 110 m. Artifacts include a granitic pestle and a granitic mano fragment, along with an obsidian biface midsection, a crypto-crystalline silicate (CCS) core fragment, and multiple obsidian and CCS flakes. No collection of artifacts occurred, and the site was recommended not eligible for listing on the NRHP or CRHR.

P-15-020558

Resource P-15-020558, also referred to as Interstate 5 or the Golden State Freeway, is a major eight-lane paved freeway spanning a total of 1,381 miles from the Mexican border in San Diego County, California, to the Canadian border in Washington State, with 800 miles located within the State of California. The route has its origins as early as 1910 and the section through the San Joaquin Valley from Sacramento to Los Angeles (Route 4) was paved circa 1930 and became US-99 in 1926. Following the passage of the Federal Aid Highway Act of 1956, the path of Interstate 5 followed the general route of US-99 and replaced portions of the original highway. The segment of Interstate 5 near Bakersfield was completed circa 1972 and was delineated on the 1974 Grapevine USGS Topographic Quadrangle Map as a four-lane highway in either direction.

The resource stretches northwest–southeast intersecting a portion of the southwestern parcels of the proposed Project boundary. Interstate 5 appears ineligible under NRHP/CRHP Criteria A, B, C and D.

P-15-021385

This resource consists of an isolated CCS flake.

P-15-021386

This resource consists of an isolated CCS flake.

P-15-021387

This resource consists of an isolated CCS flake.

P-15-021388

This resource is the Buttonwillow Wastewater Treatment Plant (WWTP). The WWTP is actively maintained, with both historical and modern elements. Historical components include an Imhoff tank, a corrugated metal shed, a storage pond, a sludge-drying bed, and a cluster of standpipes – all built between 1956 and 1967. Active use and maintenance of the facility has led to an overall modern appearance. The site was recommended not eligible for listing on the NRHP or CRHR.

Archaeology Field Survey Results

Dudek archaeologists conducted an intensive-level pedestrian survey of the entire Project site, as well as archaeological subsurface testing of the area within and/or surrounding 15 resources between January 17, 2023, and June 18, 2024. The survey and resource evaluations were conducted using standard archaeological procedures and techniques.

A portion of the Project site (approximately 605 acres) was not accessible due to active agricultural activities. This includes all of Tax Assessor's Parcels 088-220-20, 088-220-21, 088-220-22, 088-220-23 and 103-030- 45; and portions of Tax Assessor's Parcels 088-180-02, 088-180-06, 088-180-07, 088-210-01, 088-220-15 and 088-220-16. Tax Assessor's Parcels 088-220-20, 088-220-

21, 088-220-22, 088-220-23, 088-220-15 and 088-220-16 were inaccessible due to an active cattle feed lot, and adjacent retention basins and staging areas for the processing of manure and liquid waste. Tax Assessor's Parcel 103-030-45 was inaccessible due to planted crops and pesticide spraying at the time of survey. Tax Assessor's Parcel 088-180-02, 088-180-06 and 088-180-07 were inaccessible due to flooding. Visual inspection of these inaccessible areas observed similar terrain and conditions to adjacent agriculturally-active parcels, but did not provide full survey coverage.

Field efforts documented 16 new sites and updated or otherwise expanded the documentation for two previously-recorded sites. The two updated resources included P-15-000324, a pre-Contact resource with previously identified human burials (not relocated during the pedestrian survey) and P-15-020012, a highly disturbed mixed pre-Contact scatter and historic era refuse scatter located on PG&E lands. Sixteen previously unrecorded pre-Contact and historic era resources were identified and recorded. These resources included thirteen pre-Contact lithic scatters and three historic era refuse scatters.

Ground surface visibility was high (approximately 80–99 percent in most areas) over much of the Project site due to sparse vegetation within fallow agricultural fields. Subsurface exposures along drainages and animal burrows were opportunistically inspected for evidence of subsurface archaeological deposits. Soils have been disturbed historically and in modern times from water conveyance infrastructure, agriculture, and ranching.

All historic-era archaeological sites that were documented to be present within the Project site during surveys were observed to be low complexity refuse scatters, often mixed with modern debris. These were evaluated for NRHP and CRHR eligibility based on surface information. The 13 newly recorded pre-Contact sites intersecting the Project site were subject to subsurface testing, both within and surrounding the recorded distribution of surface artifacts. While a small number of incidental artifacts were observed below the surface within the plow zone, no intact subsurface deposits were documented within these sites. Subsurface testing was completed near (outside of) P-15-000324 and P-15-000325 to determine the extent of each site and potential for intact buried cultural deposits in areas surrounding these resources. No subsurface deposits were documented in areas surrounding these sites; the areas within the actual resource boundaries themselves were not subject to subsurface investigations. P-15-000325 is fenced off outside of, but adjacent to, the Project site.

Table 4.5-5: Archaeology Field Results

Site ID	Trinomial	Temp ID	Period	Survey Results
P-15-000324	CA-KER-000324	—	Pre-Contact	Relocated, updated mapping and site description. Previously reported human remains; not identified during inventory or testing in area surrounding area.
P-15-000325	CA-KER-000325	—	Pre-Contact	No cultural materials encountered within project site. Fence present around most of the resource, outside of the Project site. Testing completed around perimeter, in Project site; no subsurface deposits observed.
P-15-004347	CA-KER-00416H	GD-1	Historic	Small overlap with proposed Gen-Tie, no cultural materials encountered during survey
P-15-009737	—	PL-6	Historic	Appears to be destroyed by modern substation; entirely within existing substation footprint
P-15-009738	—	PL-7	Historic	Appears to be destroyed by modern orchards and roads, no cultural materials encountered within mapped site location
P-15-013725	CA-KER-007701H	JKE-001; East Side Canal	Historic	Adjacent to Project site, not within survey area - discussed in the *Built Environment Inventory and Evaluation Report* (Dudek 2025a)
P-15-020012	CA-KER-010921	CRM TECH 3475-1; BB-KT-S-001	Multi-component	Intersects proposed Gen-Tie in southwestern portion of Project site. Observed pre-Contact and material on PG&E lands, substantially disturbed (destroyed)
P-15-020558	—	Interstate 5; Golden State Freeway	Historic	Adjacent to Project site, not within survey area - discussed in the *Built Environment Inventory and Evaluation Report* (Dudek 2025a)
P-15-021385	—	CRM TECH 3856-1	Pre-Contact	Intersects proposed Gen-Tie in southwestern portion of Project site, no cultural materials encountered during survey
P-15-021386	—	CRM TECH 3856-2	Pre-Contact	Intersects proposed Gen-Tie in southwestern portion of Project site, no cultural materials encountered during survey
P-15-021387	—	CRM TECH 3856-3	Pre-Contact	Intersects proposed Gen-Tie in southwestern portion of Project site, no cultural materials encountered during survey

Table 4.5-5: Archaeology Field Results

Site ID	Trinomial	Temp ID	Period	Survey Results
P-15-021388	—	Buttonwillow Wastewater Treatment Plant	Historic	Site appears to match existing site record
Pending	Pending	BB-RO-S-001	Pre-Contact	Intersects Project site; subsurface testing completed - no subsurface deposits observed
Pending	Pending	BB-JR-S-001	Pre-Contact	Intersects Project site; subsurface testing completed - no subsurface deposits observed
Pending	Pending	BB-JR-S-002	Pre-Contact	Intersects Project site; subsurface testing completed - no subsurface deposits observed
Pending	Pending	BB-JR-S-003	Pre-Contact	Intersects Project site; subsurface testing completed - no subsurface deposits observed
Pending	Pending	BB-JR-S-004	Pre-Contact	Intersects Project site; subsurface testing completed - no subsurface deposits observed
Pending	Pending	BB-JR-S-005	Pre-Contact	Intersects Project site; subsurface testing completed - no subsurface deposits observed
Pending	Pending	BB-JR-S-006	Pre-Contact	Intersects Project site; subsurface testing completed - no subsurface deposits observed
Pending	Pending	BB-ES-S-001	Historic	Intersects Project site; subsurface testing completed - no subsurface deposits observed
Pending	Pending	BB-ES-S-002	Historic	Intersects Project site; subsurface testing completed - no subsurface deposits observed
Pending	Pending	BB-ES-S-003	Pre-Contact	Intersects Project site; subsurface testing completed - no subsurface deposits observed
Pending	Pending	BB-ES-S-004	Historic	Intersects Project site; subsurface testing completed - no subsurface deposits observed
Pending	Pending	BB-ES-S-005	Pre-Contact	Intersects Project site; subsurface testing completed - no subsurface deposits observed
Pending	Pending	BB-ES-S-006	Pre-Contact	Intersects Project site; subsurface testing completed - no subsurface deposits observed
Pending	Pending	BB-ES-S-007	Pre-Contact	Intersects Project site; subsurface testing completed - no subsurface deposits observed

Table 4.5-5: Archaeology Field Results

Site ID	Trinomial	Temp ID	Period	Survey Results
Pending	Pending	BB-ES-S-008	Pre-Contact	Intersects Project site; subsurface testing completed - no subsurface deposits observed
Pending	Pending	BB-ES-S-009	Pre-Contact	Intersects Project site; subsurface testing completed - no subsurface deposits observed

Tribal Coordination

The proposed Project is subject to compliance with AB 52 and Senate Bill (SB) 18, which require consultation with California Native American Tribal representatives requesting consultation in response to notifications sent by local governments as well as the proper treatment of any tribal cultural resources potentially affected by activities triggering such consultation. On February 5, 2024, the County sent AB 52 consultation letters to individuals from the Twenty-Nine Palms Band of Mission Indians, the Yuhaaviatam of San Manuel Nation, Tejon Indian Tribe, and the Torres Martinez Desert Cahuilla Indians. On February 12, 2024, the County sent SB 18 consultation letters to individuals from Kern Valley Indian Community, Northern Chumash Tribal Council, Santa Rosa Racheria Tachi Yokut Tribe, Tubatulabals of Kern Valley, Tule River Indian Tribe, Kitanemuk and Yowlumne Tejon Indians, and Tejon Indian Tribe.

Two responses have been received as of October 10, 2025. On February 8, 2024 the Yuhaaviatam of San Manuel Nation stated that they will not be requesting any additional consultation. An additional response was received on February 27, 2024 from Samantha McCarty of the Santa Rosa Rancheria Tachi Yokut Tribe indicating that the Tribe was deferring to the Tejon Indian Tribe due to the location of the proposed Project but indicating that the proposed Project vicinity was considered highly sensitive and recommending tribal monitoring from Tejon. To date, no other responses or correspondence regarding the proposed Project have been received.

4.5.3 Regulatory Setting

Federal

National Historic Preservation Act of 1966

Enacted in 1966, the National Historic Preservation Act (NHPA) declared a national policy of historic preservation and instituted a multifaceted program which the Secretary of the Interior administers to encourage the achievement of preservation goals at the federal, state, and local levels. The NHPA authorized the expansion and maintenance of the NRHP, established the position of state historic preservation officer and provided for the designation of State Review Boards, set up a mechanism to certify local governments to carry out the purposes of the NHPA, assisted Native American tribes to preserve their cultural heritage, and created the Advisory Council on Historic Preservation (ACHP). Section 106 of the NHPA states that federal agencies with direct or indirect jurisdiction over federally funded, assisted, or licensed undertakings must take into account the

effect of the undertaking on any historic property that is included in, or eligible for inclusion in, the NRHP and that the ACHP must be afforded an opportunity to comment, through a process outlined in the ACHP regulations at 36 CFR Part 800, on such undertakings.

National Register of Historic Places

As presented in 36 CFR 60.2, the NRHP was established by the NHPA of 1966 as "an authoritative guide to be used by federal, state, and local governments, private groups, and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment." The NRHP recognizes properties that are significant at the national, state, and local levels.

See above for the significance criteria (Criteria A through D) used in determining whether a property is eligible for listing in the NRHP. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, and association. Cemeteries, birthplaces, or graves of historic figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; and properties that are primarily commemorative are not considered eligible for the NRHP unless they satisfy certain conditions. In general, a resource must be at least 50 years of age to be considered for the NRHP, unless it satisfies a standard of exceptional importance.

State

California Environmental Quality Act

CEQA requires the assessment of a proposed Project's effects on cultural resources. Pursuant to CEQA, a "historical resource" is a resource listed in, or eligible for listing in, the CRHR. In addition, resources included in a local register of historic resources or identified as significant in a local survey conducted in accordance with State guidelines are also considered historic resources under CEQA, unless a preponderance of the facts demonstrates otherwise. Properties listed in or formally determined eligible for listing in the NRHP are automatically included in the CRHR. According to CEQA, the fact that a resource is not listed or determined eligible for listing in the CRHR or is not included in a local register or survey shall not preclude a lead agency, as defined by CEQA, from determining that the resource may be a historical resource as defined in California PRC Section 5024.1. CEQA applies to archaeological resources when (1) the archaeological resource satisfies the definition of a historical resource, or (2) the archaeological resource satisfies the definition of a "unique archaeological resource." A unique archaeological resource is an archaeological artifact, object, or site that has a high probability of meeting any of the following criteria:

- The archaeological resource contains information required to answer important scientific research questions and there is a demonstrable public interest in that information.
- The archaeological resource has a special and particular quality such as being the oldest of its type or the best available example of its type.
- The archaeological resource is directly associated with a scientifically recognized important pre-Contact or historic event or person.

California Register of Historical Resources

Under the California PRC, Section 5024.19(a), the CRHR was created in 1992 and implemented in 1998 as "an authoritative guide in California to be used by State and local agencies, private groups, and citizens to identify the State's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change." Certain properties, including those listed in or formally determined eligible for listing in the NRHP and California Historical Landmarks numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historical resources surveys or designated by local landmarks programs, may be nominated for inclusion in the CRHR. A resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission (SHRC) determines that it meets one or more criteria (Criteria 1 through 4) described above. Further, pursuant to PRC Section 4852(c), a cultural resource must retain integrity to be considered eligible for the CRHR. Specifically, it must retain sufficient character or appearance to be recognizable as a historical resource and convey reasons of significance. Integrity is evaluated with regard to retention of such factors as location, design, setting, materials, workmanship, feeling, and association. Cultural sites that have been affected by ground-disturbing activities, such as grazing and off-road vehicle use (both of which occur within the Project site), often lack integrity because they have been directly damaged or removed from their original location, among other changes.

Typically, a pre-Contact archaeological site in California is recommended eligible for listing in the CRHR based on its potential to yield information important in prehistory or history (Criterion 4). Important information includes chronological markers such as projectile point styles or obsidian artifacts that can be subjected to dating methods or undisturbed deposits that retain their stratigraphic integrity. Sites such as these have the ability to address research questions.

California Historical Landmarks

California Historical Landmarks (CHLs) are buildings, structures, sites, or places that have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value and that have been determined to have statewide historical significance by meeting at least one of the criteria listed below. The resource also must be approved for designation by the County Board of Supervisors (or the city or town council in whose jurisdiction it is located); be recommended by the SHRC; and be officially designated by the Director of California State Parks. The specific standards now in use were first applied in the designation of CHL #770. CHLs #770 and above are automatically listed in the CRHR.

To be eligible for designation as a landmark, a resource must meet at least one of the following criteria:

- It is the first, last, only, or most significant of its type in the State or within a large geographic region (Northern, Central, or Southern California);
- It is associated with an individual or group having a profound influence on the history of California; or
- It is: (1) a prototype or outstanding example of a period, style, architectural movement, or construction; or (2) one of the more notable works or the best surviving work in a region of a pioneer architect, designer, or master builder.

California Points of Historical Interest

California Points of Historical Interest are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Points of historical interest designated after December 1997 and recommended by the SHRC are also listed in the CRHR. No historic resource may be designated as both a landmark and a point. If a point is later granted status as a landmark, the point designation will be retired. In practice, the point designation program is most often used in localities that do not have a locally enacted cultural heritage or preservation ordinance.

To be eligible for designation as a point of historical interest, a resource must meet at least one of the following criteria:

- It is the first, last, only, or most significant of its type within the local geographic region (city or county);
- It is associated with an individual or group having a profound influence on the history of the local area; or
- It is a prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in the local region of a pioneer architect, designer, or master builder.

Native American Heritage Commission

Section 5097.91 of the California PRC established the Native American Heritage Commission (NAHC(, whose duties include the inventory of places of religious or social significance to Native Americans and the identification of known graves and cemeteries of Native Americans on private lands. Section 5097.98 of the PRC specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner.

California Public Records Act

Sections 6254(r) and 6254.10 of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to "Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission." Section 6254.10 specifically exempts from disclosure requests for "records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the SHRC, the State Lands Commission, the NAHC, another State agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a State or local agency."

Health and Safety Code, Sections 7050 and 7052

Health and Safety Code, Section 7050.5, declares that, in the event of the discovery of human remains outside of a dedicated cemetery, all ground disturbance must cease, and the county coroner must be notified. Section 7052 establishes a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives.

California Penal Code, Section 622.5

The California Penal Code, Section 622.5, provides misdemeanor penalties for injuring or destroying objects of historic or archaeological interest located on public or private lands, but specifically excludes the landowner.

Public Resources Code, Section 5097.5

PRC, Section 5097.5, defines as a misdemeanor the unauthorized disturbance or removal of archaeological, historic, or paleontological resources located on public lands.

Assembly Bill 52

Under CEQA, AB 52 requires a lead agency to consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project. Consultations must include discussing the type of environmental review necessary, the significance of tribal cultural resources, the significance of the project's impacts on the tribal cultural resources, and alternatives and mitigation measures recommended by the tribe. That consultation must take place prior to the determination of whether a negative declaration, mitigated negative declaration, or EIR is required for a project. Section 4.16, *Tribal Cultural Resources*, of this Draft EIR discusses the effort made to contact the tribes that may have an interest in the Project, in compliance with AB 52.

Local

Kern County General Plan

Given its location in the unincorporated area of Kern County, the proposed Project is subject to applicable policies and measures set forth in the Kern County General Plan (KCGP). The Land Use, Open Space, and Conservation Element of the KCGP include the following policies and implementation measures related to cultural resources that would apply to the proposed Project:

Chapter 1. Land Use, Open Space, and Conservation Element

1.10.3.—Archaeological, Paleontological, Cultural, and Historical Preservation

Policy

Policy 25. The County will promote the preservation of cultural and historic resources that provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measures

Implementation Measure K. Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.

Implementation Measure L. The County shall address archaeological and historical resources for discretionary projects in accordance with CEQA.

Implementation Measure N. The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.

Implementation Measure O. On a project-specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.

4.5.4 Impacts and Mitigation Measures

Methodology

Impacts to cultural resources could result from ground-disturbing activities associated with the proposed Project. Ground-disturbing activities include project-related excavation, grading, trenching, vegetation clearance, the operation of heavy equipment, or other surface and sub-surface disturbance that could damage or destroy surficial or buried cultural resources including pre-Contact or historic-period archaeological resources or human burials.

To evaluate the proposed Project's potential impacts to significant cultural resources, Dudek conducted archival research and a pedestrian survey as described above. In addition, Dudek

evaluated impacts to the historic built environment based on: a records search of the California Historical Resources Information System (CHRIS); the development of a study area; an intensive-level survey of the study area for built resources of historic age (45 years of age or older); building development and archival research; the creation of an appropriate historic context; and recordation and evaluation of historic-era properties located in the study area under NRHP and CRHR designation criteria.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist state that a project would normally be considered to have a significant impact if it would:

- Cause a substantial adverse change in the significance of a historical or archaeological resource pursuant to CEQA Guidelines Section 15064.5; or
- Disturb any human remains, including those interred outside of formal cemeteries.

Section 21083.2(g) of CEQA further defines "unique archaeological resource" for purposes of determination as to whether a project may have a significant effect on archaeological resources. As used in this section "unique archaeological resource" means an archaeological artifact, object, or site about which it can be demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information required to answer important scientific research questions and that there is a demonstrable public interest in that information;
- Has a special and particular quality such as being the oldest of its type or the best available of its type; or
- Is directly associated with a scientifically recognized important pre-Contact or historic event or person.

According to the CEQA Guidelines, Section 15064.5(b), a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment. The CEQA Guidelines further state that a substantial adverse change in the significance of a resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historic resource would be materially impaired. Actions that would materially impair the significance of a historical resource are any actions that would demolish or adversely alter those physical characteristics of a historical resource that convey its historical significance and qualify it for inclusion in the CRHR or in a local register or survey that meet the requirements of PRC Sections 5020.1(k) and 5024.1(g).

Project Impacts

Impact 4.5-1: Would the Project cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5?

The records search identified 12 previously recorded cultural resources within the Project site and 47 cultural resources within a 1-mile buffer. Resource records document the presence of human remains, habitation debris, and lithic material, along with historic trash scatters. Previously recorded archaeological resources that are located at least partially within the Project site include three pre-Contact sites, one historic-era refuse scatter associated with a razed dairy, one razed historic-era ranch, and three pre-Contact isolates.

The locations of all previously recorded cultural resources intersecting the Project site were revisited during the archaeological survey. As stated above, previously recorded sites include: P-15-000324, a pre-Contact resource with reported human remains; P-15-000325, a series of small campsites; and P-15-020012, a highly disturbed multi-component site which falls on PG&E lands. P-15-000324 and P-15-020012 were relocated or otherwise expanded; the remaining four previously recorded sites and three isolates appear to have been destroyed or are otherwise mapped incorrectly.

Previously recorded sites as described in the Built Environment Inventory and Evaluation Report include: P-15-009737, the Midway Switching Station; P-15-009738, public utility buildings; P-15-013725, a segment of the East Side Canal; P-15-016999, a segment of Eastside Cutoff; and P-15-020558, I-5, also intersect the Project site. As analyzed above, none of these resources meet the definition of a historical resource.

Sixteen newly recorded cultural resources were identified as a result of the surveys conducted for this proposed Project, which included 13 pre-Contact and three historic era sites. The two updated resources included: P-15-000324, a pre-Contact resource with previously identified human burials (not relocated during the pedestrian survey); and P-15-020012, a highly disturbed mixed pre-Contact scatter and historic-era refuse scatter located on PG&E lands. P-15-000324 and P-15-000325 remain unevaluated and should be assumed eligible for NRHP/CRHR listing.

Ground disturbance activities within, and in proximity to, these sites have the potential to adversely affect extant resources, thereby resulting in potentially significant impacts. Mitigation Measure MM 4.5-2 would require avoidance, if feasible, of prehistoric archaeological sites and recovery in accordance with a Data Recovery Plan if avoidance is not feasible; Mitigation Measure MM 4.5-3 would require protocols to protect unanticipated cultural resources encountered; Mitigation Measure MM 4.5-1 would require sensitivity training for construction workers; MM 4.5-2 would require a Cultural Resources Treatment Plan that outlines the process for initial ground disturbance, with a Data Recovery Plan; MM 4.5-3 would require procedures in the event that archeological materials are encountered within 50 feet of the site; and Mitigation Measure MM 4.5-4 would require monitoring of ground disturbance activities. With the implementation of Mitigation

Measures MM 4.5-1 through MM 4.5-5, potential impacts to historic resources would be less than significant.

Midway Substation Upgrades

To accommodate the requests, PG&E proposes to enlarge Midway Substation's 500 kV yard within the PG&E owned Midway Substation property boundaries. The PG&E Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities as part of the proposed Project. To support the proposed Buttonbush Solar and Storage Project's communication infrastructure, PG&E may install two (2) four-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest. This fiber-optic line is critical for the safe and efficient operation of the proposed Project. The fiber-optic line route will be trenched underground from the Midway Substation to the Point of Change of Ownership.

PG&E proposes to remove the existing precast security wall at the northwest side of the Midway Substation and replace it with a new 12-foot wall, similar in appearance and material, approximately 510 feet north and 140 feet west of the existing walls of the 500 kV yard within Midway Substation. Grading of the connection area may be required and prior to any ground-disturbing activities. PG&E would acquire all necessary permits. Within the proposed graded area of the Midway Substation, PG&E would install approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker. This would include installing equipment foundations and concrete trenches, equipment cabinets, bus structures, communication lines, conduits, pull boxes, and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, PG&E would install up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from Midway Substation to the Point of Change of Ownership for the proposed project. Up to four approximately 175-foot-tall lattice steel towers (LST) or tubular steel poles (TSPs) would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads.

As discussed above, the PG&E Midway Substation, or Midway Switching center, was identified within the API (Map ID E) as a previously recorded site. However, the Midway Switching Center does not appear eligible as a historical resource under CEQA due to lack of historical associations and architectural merit.

Summary

Ground disturbance activities within, and in proximity to, the above sites have the potential to adversely affect extant resources, thereby resulting in potentially significant impacts. Mitigation Measures MM 4.5-1 through MM 4.5-5 would reduce the potential and impacts to less than significant levels.

Mitigation Measures

MM 4.5-1: The project proponent/operator shall retain a Lead Archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology to carry out all mitigation measures related to archaeological and historical resources during ground-disturbing activities. The contact information for this Lead Archaeologist shall be provided to the Kern County Planning and Natural Resources Department prior to the commencement of any construction activities on-site. Further, the Lead Archaeologist shall be responsible for ensuring the following employee training provisions are implemented during implementation of the project:

a. Prior to commencement of any ground disturbing activities, the Lead Archaeologist, in consultation with the Native American Monitor(s), shall prepare Cultural Resources Sensitivity Training materials, including a Cultural Resources Sensitivity Training Guide, to be used in an orientation program given to all personnel working on the project. The training guide may be presented in video form. A copy of the proposed training materials, including the Cultural Resources Sensitivity Training Guide, shall be provided to the Planning and Natural Resources Department prior to the issuance of any grading or building permit.

b. The project proponent/operator shall ensure all new employees or on-site workers who have not participated in earlier Cultural Resources Sensitivity Trainings shall meet provisions specified above.

c. The training shall include an overview of potential cultural resources that could be encountered during ground disturbance activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the Lead Archaeologist for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of archaeological resources.

d. A copy of the Cultural Resources Sensitivity Training Guide/Materials shall be kept on-site and available for all personnel to review and be familiar with as necessary. It is the responsibility of the Lead Archaeologist to ensure all employees receive appropriate training before commencing work on-site.

MM 4.5-2:

Prior to the issuance of any grading or building permit, the project proponent shall submit to the Kern County Planning and Natural Resources Department a Cultural Resources Treatment Plan. The plan shall:

a. Require that prior to conducting initial ground disturbance in the vicinity of prehistoric archaeological sites, and in coordination with the Lead Archaeologist and Native American Monitor(s), exclusion areas (i.e., the

recorded boundaries of the archaeological sites and all areas within 50 feet thereof) shall be temporarily marked with exclusion markers or protective fencing as determined by the Lead Archaeologist in consultation with the Native American Monitor.

b. Require that the construction zone shall be narrowed or otherwise altered to avoid any exclusion areas.

c. Provide an overview of best management practices to be utilized during ground disturbing construction activities to ensure protection of cultural resources.

d. Outline the process for evaluation of any unanticipated cultural discoveries during project construction activities.

e. Provide a Data Recovery Plan, if required, prepared by the Lead Archeologist in consultation with the Native American Monitor(s), for the recovery of known and unanticipated cultural discoveries that cannot be avoided or preserved in place.

MM 4.5-3: During implementation of the project, in the event that archaeological materials are encountered during the course of grading or construction, the project contractor shall cease any ground-disturbing activities within 50 feet of the find. The area of the discovery shall be marked off by exclusion markers or temporary fencing that encloses a 50-foot radius from the location of the discovery. Signs shall be posted that establish it as an Environmentally Sensitive Area, and all entrance into the area shall be avoided until the discovery is assessed by the Lead Archaeologist and Native American Monitor. The Lead Archaeologist, in consultation with any Native American Monitor, shall evaluate the significance of the resources and recommend appropriate treatment measures. If further treatment of the discovery is necessary, the Environmentally Sensitive Area shall remain in place until all work is completed. Per California Environmental Quality Act (CEQA) Guidelines Section 15126.4(b)(3), project redesign and preservation in place shall be the preferred means to avoid impacts to significant historical resources.

Consistent with CEQA Guidelines Section 15126.4(b)(3)(C), if it is demonstrated that resources cannot be avoided, the Lead Archaeologist, in consultation with any Native American Monitor, shall develop additional treatment measures in consultation with the County of Kern (County), which may include data recovery or other appropriate measures. The County shall consult with appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. Diagnostic archaeological materials with research potential recovered during any investigation shall be curated at an accredited curation facility. The Lead Archaeologist, in consultation with a designated Native American Monitor, shall prepare a report documenting evaluation and/or additional treatment of the resource. A copy of the report shall be provided to the Kern County Planning and

Natural Resources Department and to the Southern San Joaquin Valley Information Center at California State University, Bakersfield.

MM 4.5-4: During implementation of the project, the services of both an Archaeological and Native American Monitor, working under the supervision of the Lead Archaeologist as identified through consultation with appropriate Native American tribes, shall be retained by the project proponent/operator to monitor, on a full-time basis, during ground-disturbing activities associated with project-related construction activities, as follows:

a. All ground-disturbing activities within 50 feet of prehistoric archaeological sites, within the Buttonbush Solar and Storage project site shall be monitored by Native American Monitor(s) and Archaeological Monitor(s).

b. During implementation of the project, Archaeological and Native American monitoring shall be conducted for all initial excavation or ground-disturbing activities. If no archaeological discoveries are made during the course of this monitoring, no additional monitoring will be required. If the Lead Archaeologist can demonstrate that the level of monitoring should be reduced or discontinued, or a need for continuing monitoring, the Lead Archaeologist, in consultation with the Kern County Planning and Natural Resources Department, may adjust the level of monitoring to circumstances as warranted.

c. All ground-disturbing activities within 100 feet of a grave site, shall be Monitored by Native American Tribal Monitors and Archaeological Monitors.

d. The Lead Archaeologist and Native American Monitor(s) shall be provided all project documentation related to cultural resources within the Project site prior to commencement of ground disturbance activities. Should the services of any additional individuals be retained (as the Lead Archaeologist, Archaeological Monitor, or Native American Monitor) subsequent to commencement of ground disturbing activities, such individuals shall be provided all proposed project documentation related to cultural resources within the project area, prior to beginning work. Documentation shall include but not be limited to previous cultural studies, surveys, maps, drawings, etc. Any modifications or updates to project documentation, including construction plans and schedules, shall immediately be provided to the Lead Archaeologist, Archaeological Monitor, and Native American Monitor.

e. The Archaeological Monitor(s) shall keep daily logs and the Lead Archaeologist shall submit monthly written updates to the Kern County Planning and Natural Resources Department and Native American Monitor. After monitoring has been completed, the Lead Archaeologist shall prepare a monitoring report that details monitoring results; assessment of inadvertent discoveries; communication with Tribal representatives; installation of, maintenance of, and guidance for, environmentally sensitive areas; and general implementation of the required mitigation. The final monitoring report shall

act as a record of compliance with guiding documents and mitigation and shall be submitted to the Kern County Planning and Natural Resources Department and the Southern San Joaquin Valley Information Center at California State University, Bakersfield.

MM 4.5-5: Prior to the initiation of ground disturbing activities, the project proponent shall retain a qualified archaeologist to perform a Phase-1 cultural resources assessment of the following parcels: APN 088-220-20, APN 088-220-21, APN 088-220-22, APN 088-220-23, APN 103-030-45, APN 088-180-02, APN 088-180-06, APN 088-180-07, APN 088-210-01, APN 088-220-15, and APN 088-220-16. A report of the study shall be submitted to the Kern County Planning and Natural Resources Department for review. The project proponent shall implement all recommended avoidance, protection, or treatment measures identified in the report. Based on the results, further cultural resources analysis (Phase-2) may be required.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.5-2: Would the Project cause a substantial adverse change in the significance of an archeological resource as defined in CEQA Guidelines Section 15064.5?

Previously recorded archaeological resources located at least partially within the Project site include three pre-Contact sites, one historic-era refuse scatter associated with a razed dairy, one razed historic-era ranch, and three pre-Contact isolates. Previously recorded sites include P-15-000324, a pre-Contact resource with reported human remains; P-15-000325, a series of small campsites; and P-15-020012, a highly disturbed multi-component site which falls on PG&E lands.

A total of 16 newly recorded resources (13 pre-Contact and three historic era) were identified within the Project site. P-15-000324 and P-15-000325 remain unevaluated and should be assumed eligible for NRHP/CRHR listing. Ground disturbance activities within, and in proximity to, these two sites have the potential to adversely affect extant resources, thereby resulting in potentially significant impacts.

However, implementation of Mitigation Measures MM 4.5-1 through MM 4.5-5 would avoid or substantially reduce potential impacts to archaeological resources. Mitigation Measure MM 4.5-1 would require worker training to avoid activities that could adversely affect resources. Mitigation Measure 4.5-2 would require the Project proponent to submit a Cultural Resources Treatment Plan that initial ground disturbance coordination with the Lead Archeologist and Native American Monitor, and the narrowing of construction zone to avoid any exclusion areas (i.e. the recorded boundaries of archaeological sites and all areas within 50 feet thereof). Mitigation Measure MM 4.5-3 would require the implementation of specific measures to evaluate the significance of, protect, and, if needed, remove and curate any resources that are inadvertently discovered during ground disturbance and/or construction activities. Mitigation Measure MM 4.5-4 would require that a qualified Archaeologist and Native American Monitor proposed Project activities and

document specific measures that are implemented to avoid impacts to resources that are either known or have the potential to exist onsite. Therefore, with implementation of the above mitigation measures, impacts would be less than significant.

Midway Substation Upgrades

As described above in Impact 4.5-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed photovoltaic solar facilities with the Midway Substation. Construction, grading, and excavation activities will be required for the installation of these facilities.

The proposed Project would intersect or fall adjacent to 19 archeological sites. One of these sites is on PG&E lands which intersects the proposed gen-tie alignments, which is highly disturbed. The site consists of large, diffuse scatter of lithic debitage and historic-aged 20th century refuse. Based on the archeological survey, there is a lack of artifacts, features, or associations that could make this site eligible for the NRHP or CRHR. Additionally, there is reported evidence of mechanical grading, resulting in cuts and push piles (Appendix E.1).

Summary

A total of 16 newly recorded resources were identified within the Project site. Two of those sites remain unevaluated and are assumed to be eligible for NRHP/CRHR listing. Additionally, the Project intersects or is adjacent to 19 archeological sites. Therefore, mitigation measures are required to reduce the potential for disturbance to archeological resource that would cause a change in significance to an archeological resource.

Mitigation Measures

Implement Mitigation Measures MM 4.5-1 through MM 4.5-5, above.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.5-3: Would the Project disturb any human remains, including those interred outside of formal cemeteries?

As discussed above, previously recorded sites include P-15-000324, a pre-Contact resource with reported human remains. Buried human remains that were not identified during field surveys could be inadvertently unearthed and/or damaged during excavation activities, thereby resulting in a significant impact. Therefore, Mitigation Measure MM 4.5-6 contains procedures for recording and treating any human remains that are discovered during construction of the proposed Project. Mitigation Measure MM 4.5-6 requires that any human remains that are discovered be protected, preserved, and treated in accordance with applicable laws, regulations, and guidelines.

Midway Substation Upgrades

As described above in Impact 4.5-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed photovoltaic solar facilities with the Midway Substation. Construction, grading, and excavation activities will be required for the installation of these facilities. While unlikely, there is still potential for the discovery of human remains through grading and excavation activities. Therefore, PG&E should implement Mitigation Measure 4.5-6 to reduce the potential for human remain discovery. Furthermore, upon the unlikely discovery of human remains, this mitigation measure would require the Project halt work and contact the Kern County Coroner for remain evaluation and proper procedures and protocols upon an unlikely discovery.

Summary

Grading and excavation activities required for the construction of the proposed Project can unearth buried human remains that were not previously identified during field surveys. In the unlikely event that human remains are unearthed, Mitigation Measure 4.5-6 would ensure proper procedures and protocols are followed.

Mitigation Measures

MM 4.5-6: If human remains are uncovered during project construction, the project contractor shall immediately halt work within 100 feet of the find, contact the Kern County Coroner to evaluate the remains, and follow the procedures and protocols set forth in of the California Environmental Quality Act *Guidelines* Section 15064.5(e). If the County Coroner determines that the remains are Native American, the coroner shall contact the Native American Heritage Commission, in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code (PRC) Section 5097.98 (as amended by Assembly Bill 2641). The Native American Heritage Commission shall designate a Most Likely Descendent for the remains per PRC Section 5097.98. Per PRC Section 5097.98, and in accordance with generally accepted cultural or archeological standards or practices, the landowner shall ensure that the immediate vicinity of the Native American human remains is not damaged or disturbed by further development activity until the landowner has conferred with the most likely descendent regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. If the remains are determined to be neither of forensic value to the Coroner, nor of Native American origin, provisions of the California Health and Safety Code (Section 7100 et. seq.) directing identification of the next-of-kin will apply.

Level of Significance after Mitigation

Impacts would be less than significant.

4.5.5 Cumulative Setting, Impacts, and Mitigation Measures

Cumulative impacts for a project are considered significant if the incremental effects of the individual projects are considerable when viewed in connection with the effects of past projects, and the effects of other projects located in the vicinity of the Project site (CEQA Guidelines Section 15355). The projects included in this analysis of cumulative impacts are described in Section 3.13, *Cumulative Projects*, of this Draft EIR, and include projects located in the southern San Joaquin Valley, in unincorporated Kern County, with an emphasis on the specific projects located within proximity to the Project site. The geographic context for this analysis includes the southern San Joaquin Valley, in unincorporated Kern County. Past, present, and future development projects contribute and/or have the potential to contribute, to impacts to cultural or tribal cultural resources. This geographic scope of analysis is appropriate because the archaeological and historical resources within this area are expected to be similar to those that occur on the Project site because of their proximity, and because the similar environments, landforms, and hydrology would result in similar land-use—and thus, site types. This is a large enough area to encompass any project impacts to cultural resources that may combine with similar effects caused by other past, current, and reasonably foreseeable future projects, and provides a reasonable context wherein cumulative actions could affect cultural resources.

The projects included in the analysis of cumulative impacts have the potential to adversely affect subsurface cultural resources that are currently unknown to exist. However, similar to the proposed Project, potential cumulative impacts would be mitigated to below a level of significance at an individual project level by adherence to applicable current State and federal laws and regulations, as well as other applicable laws, regulations, and mitigation measures, such as adherence to standard conditions of approval that require monitoring of construction sites in proximity to known resources, immediate cessation of construction activity upon discovery of unidentified human remains, and the protection of cultural resources that are discovered, as described in the mitigation measures above.

With implementation of Mitigation Measures MM 4.5-1 through MM 4.5-6 as described above, the proposed Project would not result in a cumulatively considerable contribution to a significant cumulative impact involving historical, archaeological, and/or cultural resources.

Midway Substation Upgrades

As described above in Impact 4.6-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation.

During construction, activities such as grading or excavating could further disturb lithic and 20th century refuse. Additionally, there is potential for unearthed human remains. The proposed Project, in combination with other projects, has the potential to contribute to the potential of disturbance to

human remains. Like the proposed Project, other projects would be required to properly survey sites to avoid disturbance to human remains.

Summary

The projects included in the analysis of cumulative impacts have the potential to adversely affect subsurface cultural resources that are currently unknown to exist. However, similar to the proposed Project, potential cumulative impacts would be reduced at an individual project level by adherence to all applicable current State and federal laws and regulations, as well as other applicable laws, regulations, and mitigation measures.

Mitigation Measures

Implement Mitigation Measures MM 4.5-1 through MM 4.5-6 (above).

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

Section 4.6

Energy

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Section 4.6
Energy

4.6.1 Introduction

This section of the Draft Environmental Impact Report (EIR) describes the affected environment and regulatory setting for energy. It also describes the impacts regarding energy that would result from implementation of the proposed Buttonbush Solar and Storage Project (proposed Project). The proposed Project consists of seven sites, each of which would contain a photovoltaic (PV) solar facility and associated infrastructure that would enable a total combined generation of up to 2 gigawatts (GW) of renewable electrical energy with a combined 2 GW Battery Energy Storage System (BESS) capable of storing approximately 16,000 megawatt-hours (MWh) or 16 gigawatt-hours (GWh) of energy. The proposed Project would be located on 11,983 acres and 128 parcels of privately owned land currently utilized for agricultural and open space uses in the valley region of Kern County.

Information contained within this section was primarily provided by the *Final Air Quality, Greenhouse Gas Emissions, and Energy Technical Report*, dated August 2025, which was prepared by Dudek and included as Appendix C.2 of this Draft EIR.

A description of the environmental setting (affected environment) for energy is presented below in Section 4.6.2, *Environmental Setting*. The regulatory setting applicable to energy-related impacts are presented in Section 4.6.3, *Regulatory Setting*, and Section 4.6.4, *Impacts and Mitigation Measures,* discusses project impacts and associated mitigation measures.

4.6.2 Environmental Setting

Pacific Gas & Electric (PG&E) provides natural gas and electric service to approximately 16 million people throughout a 70,000-square-mile service area in northern and central California, including Kern County (County). PG&E and other utilities in the state are regulated by the California Public Utilities Commission (PG&E 2025).

The California Energy Commission (CEC) tracks electricity and natural gas consumption across the State of California (State) for residential and nonresidential sources. According to the CEC, approximately 78,000 GWh of electricity were used in PG&E's service area in 2022. The County's 2022 nonresidential electricity demand was 12,096 (GWh) (CEC 2024a). In 2022, PG&E delivered approximately 4.4 billion therms of natural gas to the region, with 2.5 billion therms for nonresidential use and 1.9 billion therms for residential use (CEC 2024b).

According to the U.S. Energy Information Administration, California used approximately 628 million barrels of petroleum in 2022, with the majority (534 million barrels) used for the transportation sector (EIA 2022).

4.6.3 Regulatory Setting

Federal

Energy Policy and Conservation Act (1975)

The Energy Policy and Conservation Act of 1975 (EPCA) mandated that the National Highway Traffic Safety Administration (NHTSA) establish and implement a regulatory program for motor vehicle fuel economy, known as the Corporate Average Fuel Economy (CAFE) program, to reduce national energy consumption. As codified in Chapter 329 of Title 49 of the United States Code, as amended by the Energy Independence and Security Act (EISA), the EPCA sets forth specific requirements concerning the establishment of average fuel economy standards for passenger cars and light trucks. The EISA, discussed below, amended the EPCA CAFE program requirements by providing the U.S. Department of Transportation additional rulemaking authority and responsibilities.

Consistent with its statutory authority in rulemaking to establish CAFE standards for model year 2017 and beyond, NHTSA developed two phases of standards. The first phase included final standards for model years 2017–2021. The second phase, covering model years 2022–2025, included standards that were not final, because of the statutory requirement that NHTSA set average fuel economy standards not more than five model years at a time. Rather, NHTSA wrote that those standards were augural, meaning that they represented its best estimate, based on the information available at that time, of what levels of stringency might be maximum feasible in those model years. In 2012, the agencies jointly adopted more stringent Phase 2 standards for light-duty cars and trucks, which would cover model years 2017 through 2025. In August of 2016, the agencies adopted more stringent Phase 2 standards for medium- and heavy-duty vehicles, which would cover model years 2018 through 2027 for certain trailers and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks.

In 2019, the U.S. Environmental Protection Agency (EPA) and NHTSA published the Safer Affordable Fuel-Efficient Vehicles Rule Part One: One National Program (84 Federal Register 51310), which revoked California's authority to set its own greenhouse gas (GHG) emissions standards and set zero-emission vehicle (ZEV) mandates in California. In March 2020, Part Two was issued, rolling back the 2012 standards and issuing relaxed standards for model years 2021 through 2026 for passenger cars and light trucks.

In December 2021, EPA revised the national GHG emission standards for passenger cars and light trucks for model years 2023 through 2026. The standards leverage advances in clean car technology to set the strongest vehicle emissions standards ever established for the light-duty vehicle sector and would result in avoiding more than three billion tons of GHG emissions through 2050. EPA reinstated California's authority under the Clean Air Act to implement its own GHG emission standards and ZEV sales mandate in March 2022.

In March 2024, EPA finalized new, more protective multi-pollutant emissions standards to further reduce harmful air pollutant emissions from light-duty and medium-duty vehicles starting with model year 2027 and phasing in through model year 2032. The final rule builds upon the GHG emissions standards for passenger cars and light trucks established in 2021.

National Energy Conservation Policy Act (1978)

The National Energy Conservation Policy Act of 1978 (42 Section 8201 et seq.) is the foundation of most federal energy requirements. The National Energy Conservation Policy Act also established fuel economy standards for on-road motor vehicles in the United States. The NHTSA is responsible for establishing additional vehicle standards and for revising existing standards. The NHTSA and EPA are taking coordinated steps to enable the production of clean energy vehicles with improved fuel efficiency. NHTSA sets the CAFE levels, which are rapidly increasing over the next several years to improve energy security and reduce fuel consumption. In March 2022, the NHTSA finalized CAFE standards for model years 2024 to 2026. The standards require an industry-wide fleet average of approximately 49 miles per gallon for passenger cars and light trucks by model year 2026. The NHTSA projects that these standards will prevent the consumption of approximately 234 billion gallons of gasoline between model years 2030 and 2050 (NHTSA 2024).

Energy Independence and Security Act of 2007

The EISA aimed to increase U.S. energy security, increased CAFE standards for motor vehicles, and included provisions related to energy efficiency, such as renewable fuel standards (RFS), appliance and lighting efficiency standards, and building energy efficiency standards. The EISA required increasing levels of renewable fuels to replace petroleum. The EPA is responsible for developing and implementing regulations to ensure that transportation fuel sold in the United States contains a minimum volume of renewable fuel.

The RFS program regulations were developed in collaboration with refiners, renewable fuel products, and other stakeholders and were created under the Energy Policy Act of 2005. The RFS program established the first renewable fuel volume mandate in the United States. As required under the EISA, the original RFS program required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. The RFS program was expanded in several ways that laid the foundation for achieving significant reductions of GHG emissions through the use of renewable fuels, reducing imported petroleum, and encouraging the development and expansion of the nation's renewable fuels sector. The updated program is referred to as RFS2 and includes the following:

- The EISA expanded the RFS program to include diesel, in addition to gasoline.
- The EISA increased the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022.
- The EISA established new categories of renewable fuel and set separate volume requirements for each one.

- The EISA required the EPA to apply lifecycle GHG performance threshold standards to ensure that each category of renewable fuel emits fewer GHGs than the petroleum fuel it replaces.

Additional provisions of the EISA address energy savings in government and public institutions, promoting research for alternate energy, additional research in carbon capture, international energy programs, and creation of "green jobs."

State

California Energy Code

Compliance with the California Energy Code (Title 24, Part 6, California's Energy Efficiency Standards) and Title 20, Public Utilities and Energy, standards must occur for all new buildings constructed in California. These efficiency standards apply to residential and nonresidential construction and regulate energy consumed for heating, cooling, ventilation, water heating, and lighting. The building efficiency standards are enforced through the local building permit processes, and local government agencies may adopt and enforce energy standards for new buildings, provided that these standards meet or exceed those provided in the Title 24 guidelines.

Title 24 also includes Part 11, the California Green Building Standards (CALGreen). CALGreen establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality.

Warren-Alquist Energy Resources Conservation and Development Act

Initially passed in 1974 and amended since, the Warren-Alquist Energy Resources Conservation and Development Act (Warren-Alquist Act) created the CEC, California's primary energy and planning agency. The seven responsibilities of the CEC are (1) forecasting future energy needs, (2) promoting energy efficiency and conservation through setting standards, (3) supporting energy-related research, (4) developing renewable energy resources, (5) advancing alternative and renewable transportation fuels and technologies, (6) certifying thermal power plants 50 megawatts (MW) or larger, and (7) planning for and directing State response to energy emergencies. The CEC regulates energy resources by encouraging and coordinating research into energy supply and demand problems to reduce the rate of growth of energy consumption. Additionally, the Warren-Alquist Act acknowledges the need for renewable energy resources and encourages the CEC to explore renewable energy options that would be in line with environmental and public safety goals (Public Resources Code [PRC] Section 25000 et seq.).

California Integrated Energy Policy

Senate Bill (SB) 1389 (2002, as amended) requires the CEC to "… conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The Energy Commission shall use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety" (PRC Section

25301(a)). The CEC adopts an Integrated Energy Policy Report every two years and an update every other year.

California Renewables Portfolio Standard

California's Renewables Portfolio Standard was initially established in 2002 by SB 1078, with the initial requirement that 20 percent of electricity retail sales be served by renewable resources by 2017. The program was accelerated in 2006 under SB 107, which required that the 20 percent mandate be met by 2010. In April 2011, SB 2 was signed into law, requiring electricity retailers in the State to procure 33 percent of their energy sources from renewable energy sources by the end of 2020 (CPUC 2024). In addition, SB 350, passed in 2015, directs California utilities to further increase the amount of renewable energy delivered to customers to 50 percent by 2030.

In 2018, SB 100 accelerated and expanded the standards set forth in SB 350 by establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030, be secured from qualifying renewable energy sources. SB 100 also states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources does not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

Assembly Bill 32 and Senate Bill 32

In 2006, the California State Legislature enacted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020. In 2016, the legislature enacted SB 32, which extended the horizon year of the state's codified GHG reduction planning targets from 2020 to 2030, requiring California to reduce its GHG emissions to 40% below 1990 levels by 2030. In accordance with AB 32 and SB 32, the California Air Resources Board (CARB) prepares scoping plans to guide the development of statewide policies and regulations for the reduction of GHG emissions. Many of the policy and regulatory concepts identified in the scoping plans focus on increasing energy efficiencies, using renewable resources, and reducing the consumption of petroleum-based fuels (for example, gasoline and diesel). As such, the state's GHG emissions-reduction planning framework creates co-benefits for energy-related resources.

Low Carbon Fuel Standard

In 2007, Executive Order S-01-07 established a declining Low Carbon Fuel Standard (LCFS) for GHG emissions measured in carbon dioxide equivalent (CO_2e) grams per unit of fuel energy sold in California. The original target of the LCFS was to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009.

The LCFS was subject to legal challenge in 2011. Ultimately, CARB was required to bring a new LCFS regulation for consideration in February 2015. The revised LCFS regulation contained revisions and new provisions designed to foster investments in the production of the low-carbon fuels, offer additional flexibility to regulated parties, update critical technical information, simplify and streamline program operations, and enhance enforcement. In 2018, the target was revised to reduce the carbon intensity of fuels by 20% compared to 2011 by 2030. In 2020, the LCFS met 7.42% of the 7.5% target reduction for the year (CARB 2021).

2022 Scoping Plan for Achieving Carbon Neutrality

The 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) was approved by CARB in December 2022 and assesses progress toward achieving the state's GHG reduction goals and establishes a path to achieve carbon neutrality no later than 2045. The 2022 Scoping Plan focuses on outcomes needed to achieve carbon neutrality by assessing paths for advancing transportation technology, clean energy deployment, maintenance and preservation of natural and working lands, and others, and is designed to meet the state's long-term climate objectives. Specifically, the 2022 Scoping Plan identifies carbon negative technologies, including nature-based and mechanical carbon sequestration projects, as an essential component in achieving statewide carbon neutrality (CARB 2022).

Local

Kern County General Plan

The Project site is located within the unincorporated area of Kern County and, therefore, the proposed Project is subject to applicable policies and measures of the Kern County General Plan (KCGP). The Energy Element of the KCGP include goals, policies, and implementation measures related to energy that apply to the proposed Project, as described below.

Chapter 5. Energy Element

5.2 Importance of Energy to Kern County

Goal. To assert Kern County's position as California's leading energy producer, to encourage safe and orderly energy development within the County, including research and demonstration projects, and to become actively involved in the decisions and actions of other agencies as they affect energy development in Kern County.

Policies

Policy 1. Kern County should assert and promote its role as the State's leading energy County.

Policy 4. The County should actively seek State and federal energy grants and projects to assist in energy planning and development.

Policy 5. The County shall work with other agencies to define regulatory responsibility concerning energy-related issues, and shall seek to eliminate, insofar as possible, duplicative regulations.

Policy 6. The County should encourage discussion and mutual cooperation of various energy industries within the County to establish mutual understanding of common needs and issues.

Policy 7. The processing of all discretionary energy project proposals shall comply with California Environmental Quality Act (CEQA) Guidelines directing that the environmental effects of a project must be taken into account as part of project consideration.

Policy 8. The County should work closely with local, State, and federal agencies to assure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts to fish, wildlife, and botanical resources, wherever practical.

Policy 9. The County should develop and implement measures which result in long-term compensation for wildlife habitat, which is unavoidably damaged by energy exploration and development activities.

5.4.5 Solar Energy Development

Goal. Encourage safe and orderly commercial solar development.

Policies

Policy 1. The County shall encourage domestic and commercial solar energy uses to conserve fossil fuel and improve air quality.

Policy 2. The County should attempt to identify and remove disincentives to domestic and commercial solar energy development.

Policy 3. The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

Policy 4. The County should encourage solar development in the desert and valley regions previously disturbed, and discourage development of energy projects on undisturbed land supporting State or federally protected plant and wildlife species.

Implementation Measures

Measure A. The County shall continue to maintain, and update as necessary, provisions in the Kern County Zoning Ordinance to provide adequate development standards for commercial solar energy development.

Measure B. The County should work with affected state and federal agencies and interest groups to establish consistent policies for solar energy development.

Buttonwillow Community Development Specific Plan

Site 1 of the proposed Project is partially located within the area that is subject to the Buttonwillow Community Development Plan and, therefore, is subject to applicable policies and measures of the Buttonwillow Community Development Specific Plan. The Buttonwillow Community

Development Specific Plan does not contain policies or measures directly or indirectly related to energy consumption.

4.6.4 Impacts and Mitigation Measures

This section describes the methodology used in conducting CEQA impact analysis for energy; the thresholds of significance used in assessing impacts to energy; and the assessment of impacts to energy, including relevant mitigation measures.

Methodology

This analysis addresses potential energy use associated with construction, operation, and decommissioning of the project, including building electricity and transportation fuel. In the A*ir Quality, Greenhouse Gas, Emissions, and Energy Technical Report*, construction of the proposed Project was assumed to commence as early as July 2025 and last approximately 60 months, ending in June 2030 (Dudek 2025). Regardless of the start date, the duration of construction is estimated to be approximately 60 months. Year 2030 was assumed for purposes of estimating project operational energy consumption, consistent with completion of project construction. Once activated, the proposed solar equipment is estimated to have a lifespan of over 35 years with regular maintenance. Upon completion of the proposed Project's operational term, the Project operator may, at its discretion, continue to generate and sell power from the proposed Project, or decommission and remove the system and its components. For purposes of estimating energy consumption associated with project decommissioning, it was assumed that decommissioning activity would commence in January 2066 and would last approximately 25 months. However, CalEEMod does not have emission factors beyond 2050. As such, for modeling purposes, year 2050 was assumed for the end of decommissioning. Although the actual project activities will occur later than assumed and modeled, the construction schedules utilized in the analysis represent a reasonable "worst-case" analysis scenario because fuel efficiency typically increases over time due to improvements in technology and more stringent regulatory requirements. Therefore, energy consumption would be less if the construction schedule was adjusted to occur in later years.

The proposed Project's energy consumption and demand were evaluated in comparison to the CEQA thresholds of significance to determine whether the proposed Project would result in a significant impact related to energy. Specific analysis methodologies are discussed below.

Electricity and Natural Gas

Electricity consumption associated with the proposed Project was estimated using CalEEMod Version 2022.1.1.29 based on default energy consumption by land use and total building area. The operation and maintenance (O&M) building is all-electric; as such, no natural gas would be used during operation. The current version of CalEEMod assumes compliance with the 2019 Title 24 Building Energy Efficiency Standards (CAPCOA 2022); however, the proposed Project would be required to comply with the 2022 Title 24 Standards at a minimum.

Additionally, there would be energy loss from the BESS during operation due to auxiliary loads for cooling and lighting and losses. It was estimated that there would be a 3% auxiliary load and that the batteries would charge and discharge 365 days per year.

The National Renewable Energy Laboratory PVWatts estimator was used to estimate the energy produced by the solar component of the proposed Project. Pursuant to the CEQA Guidelines Appendix F, this analysis quantifies the proposed Project's energy consumption from operations and evaluates the associated impacts on energy resources and requirements, peak and base period demand, and effects on the local and regional energy supplies, and analyzes the proposed Project's compliance with existing energy standards.

Petroleum

Gasoline and diesel fuel consumption in on-road vehicles and off-road mobile equipment was estimated for project construction and operation using CO_2 emissions estimates for the proposed Project and conversion factors from The Climate Registry. Proposed Project information, calculation methodologies, and assumptions used to estimate CO_2 emissions for the proposed Project are described in Section 4.8.4, *Greenhouse Gas Emissions and Global Climate Change, Impacts and Mitigation Measures*. CalEEMod modeling files are available in Appendix A of the *Final Air Quality, Greenhouse Gas Emissions, and Energy Technical Report* (included as Appendix C.2 of this Draft EIR).

Fuel consumption was estimated by converting the total CO_2 emissions to gallons using fuel type-specific conversion factors. The conversion factor for gasoline is 8.78 kilograms CO_2 per gallon, and the conversion factor for diesel is 10.21 kilograms CO_2 per gallon (The Climate Registry 2023). Heavy-duty construction equipment associated with construction activities and haul trucks involved in importing or exporting material to and from the site were assumed to use diesel fuel. Worker vehicles were assumed to be gasoline fueled, and vendor/hauling vehicles were assumed to be diesel fueled. Grading at the Project site would be balanced and, therefore, no haul trucks would be required for import or export of soils. The movement of soils on site would be accomplished with off-road equipment.

Per CEQA Guidelines Appendix F, this analysis considers these factors and provides the estimated maximum energy consumption for the purposes of evaluating the associated impacts on energy resources and requirements.

Thresholds of Significance

The CEQA Guidelines Appendix G Checklist and the Kern County adopted CEQA thresholds state that a project would have a significant energy impact if it would:

- Result in wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
- Conflict with, or obstruct, a state or local plan for renewable energy or energy efficiency.

Project Impacts

Impact 4.6-1: Would the Project result in wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?

This impact analysis addresses the energy consumption from construction, operation, and decommissioning. Given the similarities between the activities associated with construction and decommissioning, impacts from these phases of the proposed Project are addressed concurrently.

Construction and Decommissioning Energy Demand

Project construction and decommissioning would primarily require energy consumption in the form of diesel fuel and gasoline to power off-road equipment and on-road vehicles. A negligible amount of electricity would be required for temporary construction trailers and electric equipment.

Electricity

Temporary electric power for trailers, electric equipment, and as-necessary lighting would be provided by PG&E and would represent a negligible contribution to the proposed Project's overall energy consumption. CalEEMod does not quantify temporary electricity use associated with construction and decommissioning.

Natural Gas

Natural gas is not anticipated to be required during project construction because construction of new buildings and facilities typically do not consume natural gas. Peak energy demand specifically applies to electricity; because natural gas and petroleum are liquid, these energy resources do not have the same constraints as electricity supply. Nonetheless, any use of natural gas is anticipated to be sufficiently served by existing supply from SoCalGas and would not require additional local or regional capacity. Any natural gas that may be consumed because of construction would be temporary and negligible and would not have an adverse effect.

Petroleum

Heavy-duty equipment associated with project construction and decommissioning would consume diesel fuel, as would vendor trucks involved in delivery of materials to the individual parcels within the Project site and haul trucks importing or exporting demolition material or other materials off-site. Workers would travel to and from each of the parcels within the Project site throughout the duration of construction and decommissioning. The *Final Air Quality, Greenhouse Gas Emissions, and Energy Technical Report* (included as Appendix C.2 of this Draft EIR) lists the assumed equipment usage and vehicle trips.

Based on the construction phasing schedule, construction would be anticipated to occur from 2025 through 2030 and decommissioning would occur 2066 through 2068. The estimated unmitigated petroleum demand in gallons of diesel and gasoline for project construction is shown in **Table 4.6-1:** *Total Project Combined Construction and Decommissioning Petroleum Demand (gallons)—Unmitigated*. Values presented in **Table 4.6-1:** *Total Project Construction and Decommissioning Petroleum Demand (gallons)—Unmitigated*, are derived from CO_2 emissions

available in the *Final Air Quality, Greenhouse Gas Emissions, and Energy Technical Report* (included as Appendix C.2 of this Draft EIR).

Table 4.6-1: Total Project Combined Construction and Decommissioning Petroleum Demand (gallons)—Unmitigated

Year	Off-Road Equipment (diesel)	Haul Trucks (diesel)	Vendor Trucks (diesel)	Worker Vehicles (gasoline)
2025	79,975	44,435	34,094	46,329
2026	201,712	162,786	69,214	190,284
2027	156,888	84,468	67,664	66,917
2028	239,356	167,240	66,084	195,421
2029	197,989	181,940	64,030	221,378
2030	80,764	78,602	27,525	96,392
2066	32,613	21,672	6,468	28,460
2067	216,454	138,897	41,276	182,438
2068	224,004	126,941	37,582	166,752
Total	**1,429,755**	**1,006,982**	**413,938**	**1,194,371**

Source: Dudek 2025

Note:

Calculations use unrounded numbers; totals may not appear to sum exactly due to rounding.

In total, construction and decommissioning associated with the proposed Project is conservatively anticipated to consume 1,194,371 gallons of gasoline from worker vehicles and 2,850,676 gallons of diesel for off-road equipment, haul trucks, and vendor trucks.

Table 4.6-2: *Total Project Combined Construction and Decommissioning Petroleum Demand (gallons)—Mitigated*, presents the estimated mitigated construction and decommissioning petroleum demand accounting for Mitigation Measure MM 4.3-5, which would reduce diesel consumption in off-road equipment. (Section 4.3, *Air Quality*, of this Draft EIR, for Mitigation Measure MM 4.3-5).

Table 4.6-2: Total Project Combined Construction and Decommissioning Petroleum Demand (gallons)—Mitigated

Year	Off-Road Equipment (diesel)	Haul Trucks (diesel)	Vendor Trucks (diesel)	Worker Vehicles (gasoline)
2025	78,095	44,435	34,094	46,329
2026	198,497	162,786	69,214	190,284
2027	153,227	84,468	67,664	66,917
2028	184,205	167,240	66,084	195,421
2029	177,428	181,940	64,030	221,378
2030	76,901	78,602	27,525	96,392
2066	31,929	21,672	6,468	28,460
2067	192,388	138,897	41,276	182,438
2068	129,676	126,941	37,582	166,752
Total	**1,222,346**	**1,006,982**	**413,938**	**1,194,371**

Source: Dudek 2025

Note:

Calculations use unrounded numbers; totals may not appear to sum exactly due to rounding.

With Mitigation Measure MM 4.3-5, construction and decommissioning associated with the proposed Project is conservatively anticipated to consume 1,194,371 gallons of gasoline from worker vehicles and 2,643,267 gallons of diesel for off-road equipment, haul trucks, and vendor trucks.

In the County, it is estimated that approximately 9.5 million gallons of petroleum would be consumed in 2025 from off-road equipment and 639 million gallons from on-road vehicles (CARB 2024). Overall, construction and decommissioning activities associated with the proposed Project would result in the consumption of petroleum-based fuels and a negligible amount of electricity. However, there are no unusual project characteristics that would necessitate the use of equipment or vehicles that would be less energy efficient than at comparable construction sites in other parts of the state. Additionally, contractors would not utilize fuel or electricity in a manner that is wasteful or unnecessary in the interest of cost-efficiency. Therefore, it is expected that construction and decommissioning fuel consumption associated with the proposed Project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region.

Although not required to reduce energy impacts to less than significant, the proposed Project would include Mitigation Measure MM 4.3-5, which would reduce petroleum use through use of electric equipment, use of Tier 4 Final or better diesel engines, and minimization of idling during construction and decommissioning activities. While the use of electric equipment would increase electricity consumption, it would serve to decrease petroleum use, the same requirement to minimize idling would apply, and contractors would be incentivized to avoid unnecessary consumption in the interest of cost-efficiency.

Operational Energy Demand

Long-term operational activities would require energy consumption in the form of building electricity and fuel-use to power on-road vehicles traveling to and from the site.

Electricity

Project operation would require electricity for multiple purposes including, but not limited to, building heating and cooling, water heating, lighting, appliances, and electronics. Additionally, the supply, conveyance, treatment, and distribution of water would indirectly result in electricity usage. CalEEMod default electricity generation rates based on proposed land use and climate zone were used to estimate electricity demand from project operations. (See Appendix A of the *Final Air Quality, Greenhouse Gas Emissions, and Energy Technical Report*, included as Appendix B-1 of this Draft EIR, for CalEEMod output.) **Table 4.6-3:** *Project Annual Operational Electricity Demand Summary*, presents the estimated annual increase in electricity demand associated with operation of the proposed Project.

Table 4.6-3: Project Annual Operational Electricity Demand Summary

Source	Electricity Demand (kWh/year)
Solar Facility	668,235
Battery Energy Storage System	87,600,000
Water/Wastewater	183,289
Total Annual Electricity Demand	**88,451,524**

Source: Dudek 2025

Note:

Calculations use unrounded numbers; totals may not appear to sum exactly due to rounding.

Key: kWh = kilowatt-hours

As shown in **Table 4.6-3:** *Project Annual Operational Electricity Demand Summary*, the increase in potential development is estimated to have a total electrical demand of approximately 88,451,524 kilowatt-hours (kWh) (88.45 GWh) per year. According to PVWatts, the proposed Project is estimated to produce 3,390,332,060 kWh (3,390 GWh) per year of renewable energy from the 2 GW solar system. The project includes a 2 GW BESS system capable of storing renewable energy onsite and discharging it to the grid on an as-needed basis. Thus, the proposed Project would result in a net generation of 3,301,880,536 kWh (3,301 GWh) per year. In 2022, the nonresidential electricity demand for the County was 12,096,055,522 kWh (12,096 GWh) (CEC 2024a).

For the 2021 fiscal year, PG&E had an annual electric sale to customers of approximately 77,886,999,998 kWh (77,887 GWh) (CEC 2024a). The proposed Project's electricity demand represents approximately 0.1% of the PG&E network sales for 2022.

The applicable Title 24 standards would further ensure that the energy demands would not be inefficient, wasteful, or otherwise unnecessary.

Natural Gas

The proposed Project is designed to be all-electric and operate entirely on electricity from energy generated onsite. As such, there would be no natural gas consumption during operation.

Petroleum

Operation of the proposed Project would result in consumption of gasoline and diesel fuel associated with motor vehicles traveling to and from the Project site. The estimated petroleum demand in gallons of gasoline and diesel fuel for project operations is shown in **Table 4.6-4:** *Annual Petroleum Demand*. Values presented in **Table 4.6-4:** *Annual Petroleum Demand*, are derived from CO_2 emissions available in the *Final Air Quality, Greenhouse Gas Emissions, and Energy Technical Report* (included as **Appendix C.2** of this Draft EIR).

Table 4.6-4: Annual Petroleum Demand

Fuel Type	Fuel Quantity (gallons)
Gasoline	14,015
Diesel	27,429
Total	**41,444**

Source: Dudek 2025

Note:

Calculations use unrounded numbers; totals may not appear to sum exactly due to rounding.

As shown in **Table 4.6-4:** *Annual Petroleum Demand*, the annual petroleum consumption for the proposed Project is estimated to be approximately 41,444 gallons per year. By comparison, California as a whole consumes approximately 26.4 billion gallons of petroleum per year (EIA 2022). Countywide total petroleum use by on-road vehicles is expected to be 639 million gallons per year by 2025 (CARB 2024).

Further, over the lifetime of the proposed Project, vehicle fuel efficiency is expected to increase pursuant to state regulatory actions and the related transition of vehicles to alternative energy sources (for example, electricity, natural gas, biofuels, hydrogen cells). As such, the amount of petroleum consumed as a result of vehicular trips to and from the Project site during operation would decrease over time.

PG&E Midway (Midway) Substation Upgrades

To accommodate the requests, PG&E proposes to enlarge Midway Substation's 500 kV yard within the PG&E owned Midway Substation property boundaries. The PG&E Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities as part of the proposed Project. To support the proposed Buttonbush Solar and Storage Project's communication infrastructure, PG&E may install two (2) four-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest. This fiber-optic line is critical for the safe and efficient

operation of the proposed Project. The fiber-optic line route will be trenched underground from the Midway Substation to the Point of Change of Ownership.

PG&E proposes to remove the existing precast security wall at the northwest side of the Midway Substation and replace it with a new 12-foot wall, similar in appearance and material, approximately 510 feet north and 140 feet west of the existing walls of the 500 kV yard within Midway Substation. Grading of the connection area may be required and prior to any ground-disturbing activities. PG&E would acquire all necessary permits. Within the proposed graded area of the Midway Substation, PG&E would install approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker. This would include installing equipment foundations and concrete trenches, equipment cabinets, bus structures, communication lines, conduits, pull boxes, and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, PG&E would install up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from Midway Substation to the Point of Change of Ownership for the proposed project. Up to four approximately 175-foot-tall lattice steel towers (LST) or tubular steel poles (TSPs) would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads.

Construction and decommissioning activities including (but not limited to) those associated with the Midway Substation upgrades would result in the consumption of petroleum-based fuels and a negligible amount of electricity. However, there are no unusual project characteristics that would necessitate the use of equipment or vehicles that would be less energy efficient than at comparable construction sites in other parts of the state. Additionally, contractors would not utilize fuel or electricity in a manner that is wasteful or unnecessary in the interest of cost-efficiency for the Midway Substation upgrades. Therefore, it is expected that construction and decommissioning fuel consumption associated with the Midway Substation upgrades would not be any more inefficient, wasteful, or unnecessary than comparable construction sites in the region.

Although not required to reduce energy impacts to less than significant, PG&E should implement Mitigation Measure MM 4.3-5 for the Midway Substation upgrades, which includes measures that are consistent with certain requirements of PG&E's BMPs 5 and 6 (Appendix M) and would reduce petroleum use during construction and decommissioning through use of electric equipment, use of Tier 4 Final or better diesel engines, and minimization of idling during construction and decommissioning activities. While the use of electric equipment would increase electricity consumption, it would serve to decrease petroleum use, the same requirement to minimize idling would apply, and contractors would be incentivized to avoid unnecessary consumption in the interest of cost-efficiency.

As described above, the proposed Project would result in a net generation of approximately 3,301,880,536 kWh (3,301 GWh) of electricity per year; the Midway Substation upgrades are an important component to tying into the grid and providing this energy to PG&E customers. As stated above, for the 2021 fiscal year, PG&E had an annual electric sale to customers of approximately 77,886,999,998 kWh (77,887 GWh) (CEC 2024a). The proposed Project's electricity demand represents approximately 0.1% of the PG&E network sales for 2022. Further, operation of the

Midway Substation upgrades would not involve consumption of natural gas and—similar to other maintenance activities associated with the proposed Project—would not result in disproportionately greater amounts of petroleum consumption in comparison to other projects in the region. Finally, as is the case for vehicles that will be used for other proposed Project O&M activities, vehicle fuel efficiency is expected to increase pursuant to state regulatory actions and the related transition of vehicles to alternative energy sources. Therefore, the amount of petroleum consumed as a result of vehicular trips to and from the Midway Substation site during operation would decrease over time.

Summary

Based on the analysis above, the proposed Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources, including electricity, natural gas, or petroleum during project construction, operation, and/or decommissioning. Furthermore, the proposed Project is a renewable energy generation project which would contribute toward the state's goal of carbon-free electricity by 2045. Therefore, impacts regarding the wasteful, inefficient, or unnecessary consumption of energy resources would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Less than significant.

Impact 4.6-2: Would the Project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Construction and Decommissioning

The proposed Project would utilize contractors who must demonstrate compliance with applicable regulations. During construction and decommissioning, off-road equipment and on-road vehicles would comply with all applicable federal and state requirements. For example, all off-road equipment would be subject to the most recent In-Use Off-Road Diesel-Fueled Fleets Regulations adopted by CARB, which establish engine efficiency requirements, among other requirements (CARB 2023).

With respect to the on-road vehicle fleet operations, the EPA and NHTSA have adopted Federal Vehicle Standards, with which the proposed Project would comply. The on-road construction and decommissioning fleet would incorporate these standards as staff purchase newer model trucks and turn over their fleet. As such, these regulations would have an overall beneficial effect on reducing nationwide fuel consumption over time as older trucks are replaced. Moreover, heavy-duty trucks would be required to comply with CARB's 5-minute idling limits, which would reduce fuel consumption.

Although these regulations were primarily designed to reduce criteria pollutant emissions, they would also result in an increase in energy efficiency during construction and decommissioning.

Therefore, the proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency during project construction or decommissioning.

Operation

The KCGP Energy Element sets targets and strategies to reduce GHG emissions and associated climate change impacts by supporting new renewable energy facilities. Specifically, Section 5.4.5, *Solar Energy Development*, encourages safe and orderly commercial solar development. The proposed Project would directly support this goal and the KCGP. The proposed Project's BESS would also support the storage of off-site renewable energy as PG&E increases its portfolio of renewable energy sources in support of SB 100's goal of carbon-free electricity by 2045.

Part 6 of Title 24 specifically establishes energy efficiency standards for residential and nonresidential buildings constructed in the state of California in order to reduce energy demand and consumption. The proposed Project would comply with Title 24, Part 6, per state regulations. In accordance with Title 24, Part 6, the proposed Project would have: (a) sensor-based lighting controls and, for fixtures located near windows, the lighting would be adjusted by taking advantage of available natural light; and (b) efficient process equipment with improved technology that offers significant savings through more efficient processing equipment.

Title 24, Part 11, contains voluntary and mandatory energy measures that are applicable to the proposed Project under the CALGreen Code. As discussed under Impact 4.6-1, the proposed Project would result in an increased demand for electricity and petroleum. In accordance with Title 24, Part 11, mandatory compliance, the applicant must: (a) divert 50% of the construction and demolition waste from landfills; (b) allow mandatory inspections of energy systems to ensure optimal working efficiency; (c) install low-pollutant-emitting exterior and interior finish materials, (for example, paints, carpets, vinyl flooring, and particle boards); and (d) achieve a 20% reduction in indoor water use. Compliance with these mandatory measures would decrease the consumption of electricity and petroleum.

PG&E Midway Substation Upgrades

As described above in Impact 4.6-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the PG&E owned Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. Similar to other proposed construction and decommissioning activities involved with the proposed Project, the Midway Substation upgrades would involve contractors who must demonstrate compliance with applicable federal and state requirements, such as the most recent In-Use Off-Road Diesel-Fueled Fleets Regulations adopted by CARB, which establish engine efficiency requirements, among others. Further the on-road vehicle fleet would be required to comply with the EPA and NHTSA adopted Federal Vehicle Standards and compliance with mitigation measures regarding criteria pollutant emissions which PG&E should implement for the Midway Substation upgrades to increase energy efficiency during construction and decommissioning.

As a critical component of the proposed Project operations, the Midway Substation upgrades would facilitate the proposed Project's delivery of renewable energy and result in a solar energy production facility that is consistent with the KCGP Energy Element, Section 5.4.5, Solar Energy Development goal of encouraging safe and orderly commercial development.

Summary

Given that the proposed Project would support state and county plans for renewable energy, the proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency and impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Less than significant.

4.6.5 Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

Cumulative impacts occur when the incremental effects of a project are significant when combined with similar impacts from other past, present, or reasonably foreseeable projects in a similar geographic area. The geographic scope for the analysis of cumulative impacts on energy resources is Kern County. Analysis of cumulative impacts takes into consideration the entirety of impacts that the projects, zone changes, and general plan amendments discussed in **Section 3.12**, *Cumulative Projects*, would have on energy resources. This geographic scope of analysis is appropriate because energy resources within this area are expected to be similar to those in the Project site because of their proximity and similar environments would result in similar land use and, thus, site types.

With regard to energy, the proposed Project has the potential to contribute significantly to cumulative impacts within the study area. The main contribution of energy consumption from the proposed Project would be petroleum use in construction and decommissioning equipment, haul trucks, delivery trucks, and employee vehicles during the construction and decommissioning phases, and electricity use and petroleum use in maintenance and employee vehicles during project operation. The proposed Project's energy consumption would, therefore, contribute to the increase in energy consumption in the transportation sector as well as electricity generation sector.

Although the proposed Project would result in a contribution to cumulative energy consumption in California, construction and decommissioning of the proposed Project would involve implementation of Mitigation Measure MM 4.3-5, which would reduce petroleum use through use of electric equipment, use of Tier 4 Final or better diesel engines, and minimization of idling during

construction and decommissioning activities. Additionally, construction and decommissioning would be finite and temporary and energy consumption would cease at the end of these activities.

In addition, operation of the project would offset emissions from the electricity generation sector. Operation of the proposed Project would result in an estimated net generation of 3,301,880,536 kWh (3,301 GWh) of renewable electricity annually. As a result, the proposed Project would not contribute to cumulative energy consumption in California because operation of the proposed Project would provide renewable electric power with negligible operational energy consumption over the long term when compared to traditional fossil-fueled generation technologies.

Midway Substation Upgrades

As described above in Impact 4.6-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the PG&E owned Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the point-of-interconnection for the proposed Project. Similar to other components of the proposed Project, the main sources of energy consumption would involve petroleum use in decommissioning equipment, haul trucks, delivery trucks, and employee vehicles during the construction and decommissioning phases, and electricity use and petroleum use in maintenance and employee vehicles during project operation. However, contractors would be required to demonstrate compliance with applicable federal and state requirements that would increase fuel efficiency. In addition, the Midway Substation upgrades are an essential component to the proposed Project which would result in a net increase in renewable electricity, consistent with the KCGP Energy Element, Section 5.4.5, Solar Energy Development goal of encouraging safe and orderly commercial development.

Summary

In summary, the proposed Project would not make a cumulatively considerable contribution to a significant cumulative impact regarding energy consumption and/or resulting from a conflict with a renewable energy plan.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

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Section 4.7

Geology and Soils

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Section4.7
Geology and Soils Resources

4.7.1 Introduction

This section of the Draft Environmental Impact Report (EIR) describes the affected environment and regulatory setting for geology, paleontological resources, and soils resources. This section also describes the impacts on geologic and soils resources that would result from implementation of the proposed Buttonbush Solar and Storage Project (proposed Project) and identifies mitigation measures that would reduce these impacts, if necessary.

The analysis in this section is based (in part) on the *Paleontological Resources Inventory Memorandum for the Buttonbush Solar and Storage Project, Unincorporated Kern County, California* report prepared by Dudek on December 2, 2024, and updated on June 10, 2025, and the *Desktop Geotechnical Site Assessment Report* prepared by Kleinfelder on June 17, 2025, which is included as Appendices G and F (respectively), of this Draft EIR and incorporated by reference herein.

4.7.2 Environmental Setting

Regional Geologic Setting

The Project site is located in the southern portion of the Great Valley geomorphic province, with the Coast Ranges geomorphic province to the southwest and the Sierra Nevada to the east. The Great Valley geomorphic province is a trough in which sediments have been deposited almost continuously since the Jurassic (about 160 million years ago). The Great Valley geomorphic province comprises the Sacramento Valley to the north and the San Joaquin Valley to the south, and is approximately 400 miles long and 50 miles wide (Appendix F). The San Joaquin Valley is approximately 200 miles long and up to 70 miles wide. The northern portion of the San Joaquin Valley is drained by the San Joaquin River, which flows from east-central California to the San Francisco Bay before reaching the Pacific Ocean. The southern portion of the San Joaquin Valley drains into two terminal lake beds: Tulare Lake and Buena Vista Lake.

The Great Valley province is characterized as a broad, sediment-filled trough bounded on the east by the Sierra Nevada Mountains and on the west by the mountains and hills of the Coast Ranges (and the San Andreas Fault).The San Andreas Fault is the master fault of an intricate fault network cutting through the California coastal region; the fault extends from northern California to the San Bernardino area of southern California. The San Andres Fault is approximately 22 miles southwest of the Project site.

Despite the generally low relief, the topography of the project vicinity includes two subdued, northwest-trending ridges (the Buttonwillow and Semitropic Ridges) separated by an intervening trough (the Jerry Slough). The Buttonwillow Ridge has been uplifted along the northwest-striking Buttonwillow anticline exposing older sedimentary deposits along the Buttonwillow Ridge and trapping westward-flowing runoff to form the northwest-draining Jerry Slough. A concealed (buried) fault is shown by the California Geologic Survey (CGS 2025) along parts of the northeast side of Buttonwillow Ridge and this fault is inferred to be a blind thrust-fault related folding of the Buttonwillow anticline. The Project site is not intersected by any known faults but the site is in a region considered seismically active.

Local Geologic Setting

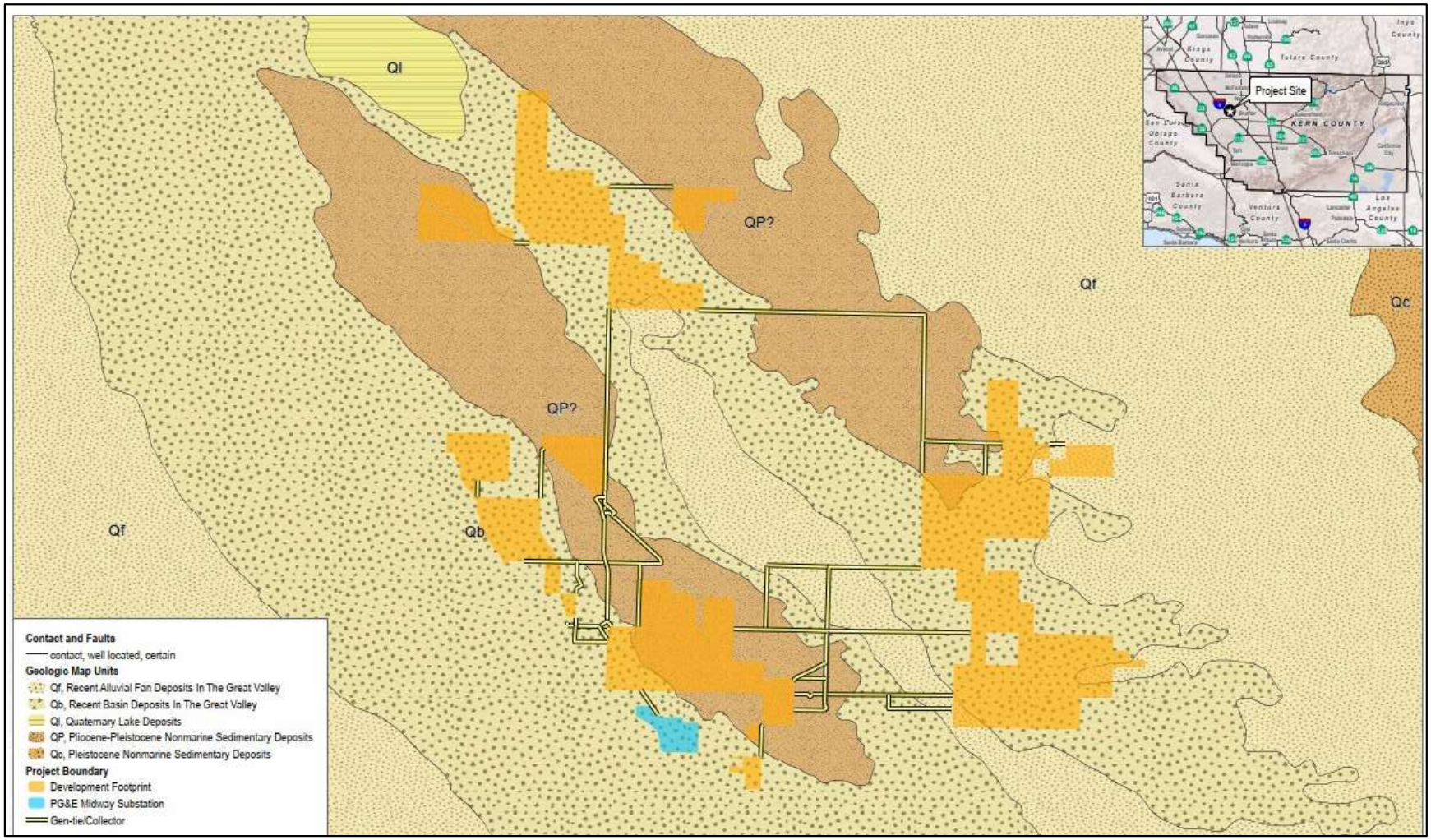
Soils and Topography

The vicinity of the Project site is crossed by Buttonwillow Ridge, the Semitropic Ridge, and the Jerry Slough. The Buttonwillow and Semitropic Ridges have slightly higher elevations than the surrounding terrain and are underlain by older sediments. The intervening and slightly lower elevation Jerry Slough is underlain by younger sediments

Elevations within the Project site range from approximately 245 feet above mean sea level (msl) in the low-lying Jerry Slough to approximately 320 feet above msl at the southeast end of the Semitropic Ridge. Overall, the ground surface is relatively flat with a gentle gradient to the northwest. The Project site is nearly level from existing and continuous agricultural use.

Based on a review of regional geologic mapping in the vicinity of the site, the Project site is underlain by Quaternary old alluvial deposits. More specifically, the Project site is underlain by the following geological units: recent (past 11,700 years) alluvial fan deposits (map unit Qa); recent basin deposits (map unit Qb); quaternary lake deposits consisting of clay, silt, and fine sand (map unit QI); and Pilo-Pleistocene nonmarine sedimentary deposits (map unit QP) (**Figure 4.7-1:** *Geological Map*) (Dudek 2024; Kleinfelder 2025). These Quaternary-aged old alluvium deposits consist mostly of clay, clay loam, silt loam, and fine sandy loam, which are further described in Section 4.4, *Biological Resources*, of this Draft EIR.

Figure 4.7-1: Geologic Map



Source: Dudek 2024

Groundwater

As further described in Section 4.10, *Hydrology and Water Quality*, of this Draft EIR, the Project site is located within the Kern County Hydrologic Region, for which the Kern Groundwater Authority is the principal groundwater management agency. The Kern County Groundwater Subbasin (Subbasin) is the specific groundwater subbasin in which the proposed Project resides and has a surface area of approximately 2,785 square miles (1,782,400 acres). The Subbasin is bounded on: the north by the Kern County jurisdictional line and the Tule Groundwater Subbasin; on the east and southeast by granitic bedrock of the Sierra Nevada foothills and Tehachapi Mountains; and on the southwest and west by the marine sediments of the San Emigdio Mountains and Coast Ranges. Artificial recharge occurs primarily from irrigation of agricultural areas and, to a lesser extent, atmospheric recharge from precipitation and stream seepage. Recharge near the Project site occurs through managed and unmanaged recharge through spreading basins, unlined channels, and waterways (Appendix F).

Numerous irrigation wells are located near the Project site. Water production wells in the site vicinity show groundwater at depths of approximately 196 to 358 feet below ground surface (bgs) (DWR 2024). A recent groundwater depth measurement in March 2024 (Well ID: 29S24E13A001M) showed a groundwater depth of 300.3 feet bgs.

Fault Rupture

A fault is a fracture in the earth's crust where rocks or sediment on one side of the fault have moved relative to those on the other side. Faults are the result of excessive strain caused by compression or extension within the earth's crust over time. A fault trace is the line on the earth's surface representing the fault location. Ground surface rupture along an earthquake fault may cause damage to aboveground infrastructure and other features and occurs when movement on a fault deep within the earth breaks through to the surface. The California Geological Survey has mapped known active faults that may cause surface fault rupture as part of the Alquist-Priolo Earthquake Fault Zoning Act. Rupture may occur suddenly during an earthquake or slowly in the form of fault creep. Sudden displacements are more damaging to structures because they are accompanied by ground shaking. Accordingly, ground surface rupture along an earthquake fault may cause damage to aboveground infrastructure and other features. Active faults are defined as faults with evidence of displacement in the last 11,700 years. The Project site is not located within an Earthquake Fault Zone regulated under the Alquist-Priolo Earthquake Fault Zoning Act. According to the Department of Conservation California Geological Survey, the nearest fault hazard zone is the Premier Fault Zone, located approximately 15 miles east of the Project site (CGS 2025). In addition, the San Andreas Fault Zone, the largest fault in California, is located approximately 22 miles west of the Project site and the White Wolf Fault Zone is located approximately 34 miles southeast of the Project site (USGS 2023).

A pair of concealed, pre-Quaternary faults are associated with Buttonwillow and Semitropic Ridges which cross the Project site. A concealed, pre-Quaternary fault is a fault that is buried below the depth of Holocene- and Pleistocene-age sediments. In the geologic context of Buttonwillow and Semitropic Ridges, these pairs of faults are inferred to be blind thrust-faults associated with the

folding of the Buttonwillow anticline and possibly the Semitropic anticline. As such, these faults do not pose a surface fault rupture hazard at the Project site.

Liquefaction

Liquefaction describes a condition in which a saturated, cohesionless soil loses shear strength during strong seismically induced ground shaking. Lateral and vertical movements of the soil mass, combined with loss of bearing strength, usually result from this phenomenon. Fine, well-sorted, loose sand, shallow groundwater (typically 40 feet or less), severe seismic ground motion, and particularly long durations of ground shaking, are conditions conducive for liquefaction. Lateral spreading is a potential hazard commonly associated with liquefaction where extensional ground cracking and settlement occur following lateral migration of subsurface liquefiable material. These phenomena typically occur adjacent to free faces, such as slopes and creek channels.

Zones of Required Investigation, referred to as "Seismic Hazard Zones" in California Code of Regulations (CCR) Article 10, Section 3722, are areas where site investigations are required to determine the need for mitigation of potential liquefaction and/or earthquake-induced landslide ground displacements. The California Geological Survey has not mapped Seismic Hazard Zones for the Project site (CGS 2025).

Ground Shaking

Faults located within the vicinity of the Project site have the potential to cause ground shaking to occur on the Project site. The magnitude of ground shaking that could occur on-site is dependent on the distance to causative faults and the earthquake magnitude (or measure of the amount of energy released during an earthquake event). The closest major active fault that could produce strong seismic shaking at the Project site include the San Andres Fault, located approximately 22 miles west of the Project site.

Since 1800, several earthquakes have occurred within the vicinity of the Project site (approximately a 31-mile radius), including the 1857 magnitude 8.25 Fort Tejon earthquake on the San Andreas Fault Zone. Although the epicenter of the Fort Tejon earthquake was greater than 31 miles from the Project site, the earthquake produced a surface rupture over 217 miles long along the fault zone, including the part of the San Andreas Fault nearest the site, and was reported to have lasted at least one minute.

Three, other smaller magnitude earthquakes have occurred within 25 miles of the site, two of which occurred roughly 25 miles southeast of the site on a series of unnamed faults. A magnitude 5.22 earthquake occurred in August of 2024 and a magnitude 5.19 occurred in May of 1993. The third occurred on an unnamed fault roughly 22 miles east of the Project site in August of 1952 and had a magnitude of 5.52. Minimal data of these three earthquakes were recorded, and no damage was reported.

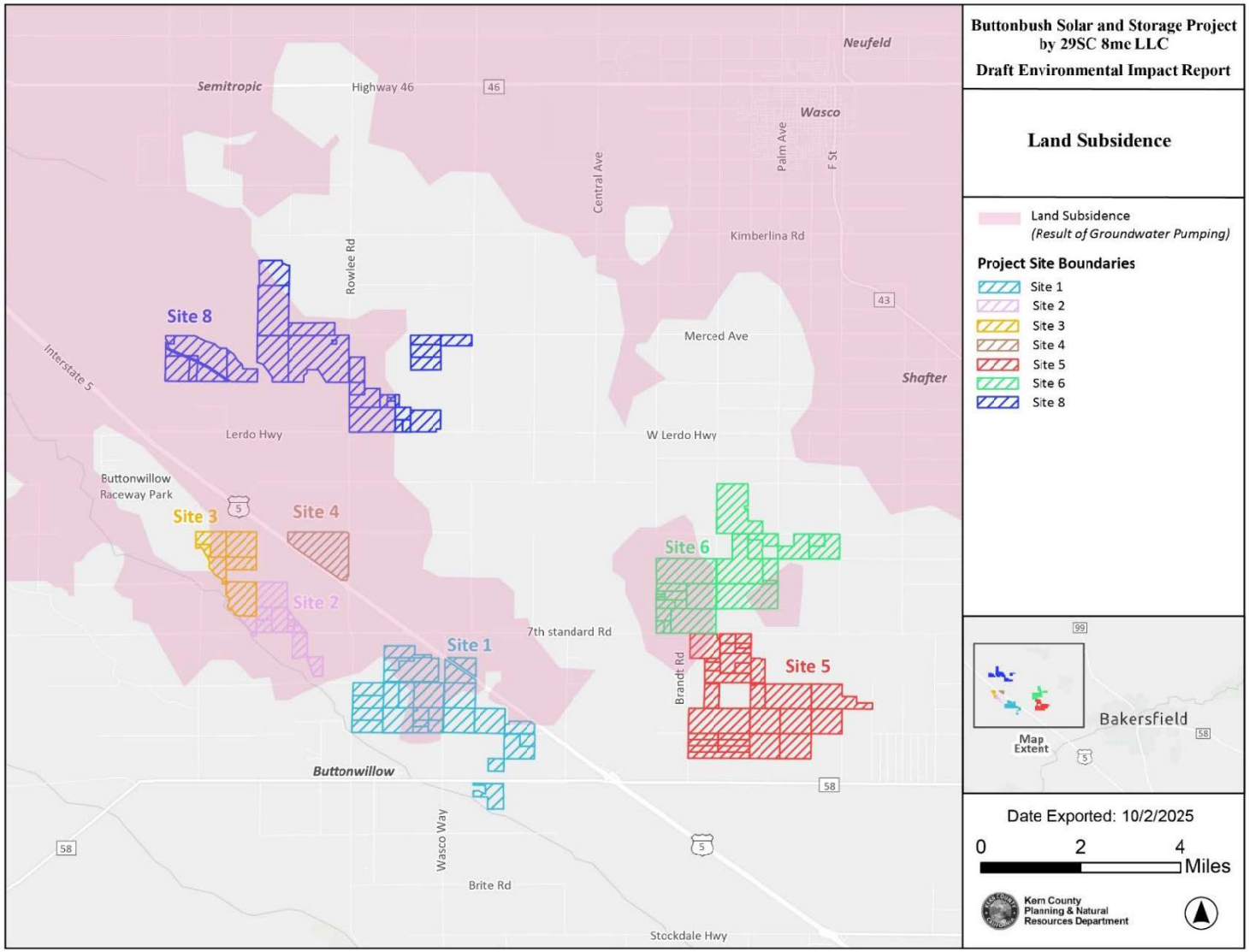
Landslides

A landslide is the down-gradient movement of earth material along a slope or hillside. Landslides occur on slopes when geologic materials lose strength and the force of gravity causes the material to move down-gradient. Earthquakes can induce landslides and mass wasting in areas that are susceptible. Landslides can result from a variety or combination of root causes such as steepness of slope, type of material, water content, amount and type of vegetation, and hazardous events (for example, earthquakes and floods). Steeper slopes and weaker rocks are the most vulnerable to landslide events. As described above, the topography of the site and surrounding area is generally flat. Research and field observations do not indicate the presence of landslides on the site or in the immediate vicinity. Regional geologic maps based on the California Geological Survey do not indicate the presence of known or suspected landslides in the vicinity of the site. Therefore, there is very low probability of landslides occurring within the Project site.

Land Subsidence

Subsidence is the settlement or sudden sinking of the ground surface over large areas, and it has been documented throughout California, including the San Joaquin Valley. Tectonic subsidence refers to the long-term slow sinking of the land surface. Subsidence can occur when moisture-deficient soils are exposed to water, which causes collapse. The U.S. Geological Survey (USGS) California Water Science Center (USGS n.d.) documents historical and current areas of land subsidence. As shown in **Figure 4.7-2:** *Land Subsidence Map* (below), all of the Sites (1–6 and 8) are at least partially located within an area of recorded historical or current subsidence due to groundwater pumping.

Figure 4.7-2: Land Subsidence Map



Soil Collapse

Collapsible soils consist of loose, dry, low-density materials that collapse, compact and change in settlement under the addition of water or excessive loading, often resulting in severe damage to structures. More specifically, collapse occurs when soil is saturated and the soil fabric cannot support the weight of the overburden or structures. The maximum load that such soils can support is the difference between the saturation collapse and overburden pressures. These soils are distributed throughout the southwestern United States, specifically in areas of young alluvial fans, debris flow sediments, and loess. Site soils have been subjected to past irrigation and tilling as agricultural land and are known to have a relatively high salt content, factors which may contribute to collapsible soils.

Expansive Soils

Soils that expand and contract in volume ("shrink–swell" pattern) are considered to be expansive and may cause damage to aboveground infrastructure as a result of density changes that shift overlying materials. Fine-grain clay sediments are most likely to exhibit shrink–swell patterns in response to changing moisture levels. Within the Project site, near-surface soils encountered in previous areas mapped by the U.S. Department of Agriculture and presented on the Web Soil Survey, indicate that expansive soils may be located at the Project site (USDA 2024). The potential effects of the shrinking and swelling of expansive soils and the associated impacts can be mitigated through prudent grading and design of the structures. A design-level geotechnical investigation would be required to confirm the identification of expansive soils in the Project site.

Erosion

Soil erosion occurs when surface materials are worn away from the earth's surface due to land disturbance and/or natural factors such as wind and precipitation. Characteristics such as texture and content, surface roughness, vegetation cover, and slope grade and length determine the potential for soil erosion. Wind erosion typically occurs when fine-grained, noncohesive soils are exposed to high velocity winds, while water erosion tends to occur when loose soils on moderate and steep slopes are exposed to high-intensity storm events. According to the Kern County General Plan (KCGP 2009) Safety Element, the Project site is not within a zone that is prone to soil erosion.

Settlement

Settlement of soils is the sinking or descending of soils resulting from a heavy load being placed on underlying sediments and may be triggered by seismic events. Seismically induced settlement is dependent on the relative density of the subsurface soils. Within the Project site, a design-level geotechnical investigation would be required to confirm the potential for seismic settlement in the Project site.

Lateral Spreading

Lateral spreading is a potential hazard commonly associated with liquefaction where extensional ground cracking and settlement occur following lateral migration of subsurface liquefiable material. These phenomena typically occur adjacent to free faces (for example, slopes and creek

channels). Considering the general topography of the Project site terrain and the likely absence of liquefaction, lateral spreading would be unlikely.

Paleontological Resources

To determine the paleontological sensitivity of the Project site, a paleontological resources inventory was conducted for the proposed Project. The inventory consisted of a Natural History Museum of Los Angeles County (LACM) paleontological records search, paleontological survey, and review of geological mapping and geological and paleontological literature. Paleontological resources include mineralized (fossilized) remains of prehistoric plants and animals and the mineralized impressions, or "footprint" (trace fossils), of plants or animals such as their trail, burrow, or any other activity of the animal itself. The primary factor determining if an object is a fossil is the age of the organic remain or trace. Typically, fossils must be older than approximately 11,700 years, but materials as young as 5,000 years can be considered, which approximates the middle Holocene (Appendix G). One other consideration is the geologic units in which a project occurs because some localities and the geologic units are considered to have a greater paleontological sensitivity, or potential to contain fossils. Accordingly, paleontological resources include these localities and the geologic units in which the resources may be located. As mentioned above, the Project site lies within the southern portion of the Great Valley geomorphic province, characterized by a depositional basin that has received sediments since the Jurassic Period (~160 million years ago). The Project site is underlain by recent alluvial fan deposits, recent basin deposits, possible Pleistocene to Pliocene nonmarine deposits (**Figure 4.7-1:** *Geological Map*). These Quaternary-aged old alluvium consist mostly of clay, clay loam, silt loam, and fine sandy loam.

Ultimately, the paleontological potential is determined based on known fossil localities within a given geologic unit, or the potential for future fossil discoveries, or both, given the age and depositional environment of a particular geologic unit. While recent alluvial fan and basin deposits are generally too young to yield significant paleontological resources on the surface and at shallow depths, Pleistocene and Pliocene alluvial/nonmarine deposits are known to produce significant fossils in the vicinity of the Project site and potentially underlie the more recent sediments. Recent compilations of Holocene and Pleistocene vertebrate fossils from the proposed Project vicinity reported fossil fish (*Osteichthyes*), salamander (*Urodela*), turtle (*Clemmys* sp.), lizard (*lacertilia*), snake (*Colubridae*), bird (*Fringillidae*), bat (*Chiroptera*), mole (*Scapanus* sp. cf. *S. latimanus*), rabbit (*Sylvilagus* sp. and *Lepus* sp.), rodent (*Eutamias* sp., *Peromyscus* sp., *Neotoma* sp., *Microtus* sp., *Dipodomys* sp., *Thomomys* sp., and *Ondatra zebethica*), pronghorn (*Capromeryx*), deer (*Odocoileus* sp.), and horse (*Equus occidentalis* and *Equus* sp.) (Appendix G).

The approximately 11,983-acre Project site consists of active agricultural fields with high ground surface visibility (approximately 80%–99% in most areas) over much of the Project site. Subsurface exposures along drainages and animal burrows were opportunistically inspected for evidence of subsurface paleontological resources and sediments depending on whether the field was recently plowed and what type of produce was being grown (Appendix G). No in situ fossils were observed during the paleontological survey.

Further, to satisfy the requirements of state guidelines (Title 13, Public Resources Code [PRC] Section 21000 et. seq.) and PRC Section 5097.5 (Stats 1965, c 1136, p. 2792), the following definitions for high, undetermined, low, and no paleontological resource potential, or sensitivity were used, as set forth in and by the Society of Vertebrate Paleontology (SVP 2010) Guidelines for Determining Significance: Paleontological Resources.

High Potential Areas

Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have a high potential to contain additional significant paleontological resources. Rock units classified as having high potential for containing paleontological resources include sedimentary formations and some volcaniclastic formations (for example, ashes or tephras), low-grade metamorphic rocks that contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (for example, middle Holocene and older, fine-grained fluvial sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, and fine-grained marine sandstones).

Undetermined Potential

Rock units with little available information concerning their paleontological content, geologic age and depositional environment are considered to have undetermined potential. Additional study is necessary to determine if these rock units have a high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist to determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.

Low Potential

Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow for a determination that some rock units have a low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or based on general scientific consensus, and only preserve fossils in rare circumstances. For these rock units, the presence of fossils is the exception, not the rule. Rock units with low potential typically will not require impact mitigation measures to protect fossils. Examples of rock units with low potential for exhibiting significant fossils include those resulting from basalt flows or consisting of recent colluvium.

No Potential

Some rock units have no potential to contain significant paleontological resources, for instance, high-grade metamorphic rocks (for example, gneisses and schists) and plutonic igneous rocks (for example, granites and diorites). Rock units with no potential require no protection or mitigation measures relative to paleontological resources.

Existing Paleontological Resources

A paleontological resources inventory was conducted to determine the paleontological sensitivity of the Project site in compliance with California Environmental Quality Act (CEQA) and SVP (SVP 2010) guidelines. The inventory consisted of LACM paleontological records search, paleontological survey, and review of geological mapping and geological and paleontological literature.

Records Search

The results of the paleontological records search were negative for paleontological resources within the Project site; however, the LACM reported six fossil localities near the Project site as further described in **Table 4.7-1:** *Paleontological Records Search*.

Table 4.7-1: Paleontological Records Search

Location	Formation or Unit	Taxa	Depth
Polonia Pass, northwest of Antelope Valley	Unnamed Pleistocene unit containing discontinuous light gray, silty sandstone	Deer (*Cervidae cf. Odocoileus*); and microvertebrate assemblage, including lizards (*Lacertilia*), snakes (*Serpentes*), rodents (*Rodentia*), and rabbits/hares/pikas (*Lagomorpha*)	Unknown, found during highway construction
East of Angiola	Unnamed Pleistocene unit consisting of blue shale	Horse (*Equus*)	425 ft bgs, in well boring
East of Terra Bella	Unnamed Pleistocene unit	Mammoth (*Mammuthus*)	Unknown
Flynn ranch, southeast of Ducor, California	Unnamed Pleistocene unit consisting of green sand	Mammoth (*Mammuthus*)	6 ft bgs

Key: ft bgs = feet below ground surface

4.7.3 Regulatory Setting

Geologic resources and geotechnical hazards are governed primarily by local jurisdictions. The conservation elements and seismic safety elements of city and county general plans contain policies for the protection of geologic features and avoidance of hazards.

CEQA is the major environmental statute that guides the design and construction of projects on nonfederal lands in California. This statute establishes a specific process for environmental impact analysis and public review. In addition, the Project proponent must comply with other applicable federal, state, and local statutes, regulations, and policies. Relevant and potentially relevant statutes, regulations, and policies are discussed below.

Federal

Clean Water Act (Erosion Control)

The purpose of the Federal Clean Water Act (CWA) (33 United States Code [USC] 1251 et seq.) is to restore and maintain the chemical, physical, and biological integrity of waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point-source and certain nonpoint-source discharges to surface water. The National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402) regulates such discharges. Proponents of projects that disturb one acre or more are required to obtain NPDES coverage under the NPDES General Permit for Stormwater Discharges Associated with Construction Activity (Construction General Permit), Order Number (No.) 2022-0057-DWQ (NPDES No. CAS000002). The Construction General Permit requires a project proponent to develop and implement a Stormwater Pollution Prevention Plan (SWPPP) that includes best management practices (BMPs) to regulate stormwater runoff, including measures to prevent soil erosion. Requirements of the CWA and associated SWPPP are described in further detail in Section 4.10, *Hydrology and Water Quality*, of this Draft EIR.

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was enacted in 1997 to "reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program" (Section 3, Purpose, of Public Law [P.L.] No. 95-124). To accomplish this, the Earthquake Hazards Reduction Act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended in November 1990 to refine the description of agency responsibilities, program goals, and objectives.

NEHRP's mission includes: improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. The NEHRP designates Federal Emergency Management Agency as the lead agency of the program, and assigns it several planning, coordinating, and reporting responsibilities. Programs under the NEHRP help inform and guide planning and building code requirements (for example, emergency evacuation responsibilities and seismic code standards).

Paleontological Resources

A variety of federal statutes specifically address paleontological resources. They are generally applicable to a project if that project includes federally owned or federally managed lands, or involves a federal agency license, permit, approval, or funding. The first of these, established in the USC, is the Antiquities Act of 1906 (54 USC 320301–320303 and 18 USC 1866[b]), which calls for protection of historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on federally administered lands, the latter of which would include fossils. The Antiquities Act established a permit system for the disturbance of any object of antiquity on federal land and criminal sanctions for violation of these requirements. The Antiquities Act was extended

to specifically apply to paleontological resources by the Federal-Aid Highways Act of 1958. More recent federal statutes that address the preservation of paleontological resources include the National Environmental Policy Act, which requires the consideration of important aspects of national heritage when assessing the environmental impacts of a project (P.L. 91-190, 31 Stat. 852, 42 USC 4321–4327). The Federal Land Policy Management Act of 1976 (P.L. 94-579; 90 Stat. 2743, USC 1701–1782) requires that public lands be managed in a manner that will protect the quality of their scientific values, and Title 40 of the Code of Federal Regulations, Section 1508.2, identifies paleontological resources as a subset of scientific resources. The Paleontological Resources Preservation Act (Title VI, Subtitle D, of the Omnibus Land Management Act of 2009) is the primary piece of federal legislation.

State

Alquist-Priolo Earthquake Fault Zoning Act of 1972

The Alquist-Priolo Earthquake Fault Zoning Act of 1972 regulates development and construction of buildings intended for human occupancy to avoid hazards from surface fault rupture. In accordance with this law, the California Geological Survey maps active faults and designates Earthquake Fault Zones along mapped faults. The Alquist-Priolo Earthquake Fault Zoning Act groups faults into categories of active, potentially active, and inactive. Historic- and Holocene-age faults are considered active, Late Quaternary- and Quaternary-age faults are considered potentially active, and pre-Quaternary-age faults are considered inactive. These classifications are qualified by the conditions that a fault must be shown to be "sufficiently active" and "well defined" by detailed site-specific geologic explorations to determine whether building setbacks should be established. Any project that involves the construction of buildings or structures for human occupancy (for example, an operation and maintenance [O&M] building) is subject to review under the Alquist-Priolo Earthquake Fault Zoning Act, and any structures for human occupancy must be located at least 50 feet from any active fault.

Seismic Hazards Mapping Act of 1990

In accordance with PRC, Chapter 7.8, Division 2, the California Geological Survey delineates Seismic Hazard Zones through the Seismic Hazards Zonation Program. The purpose of the Seismic Hazards Mapping Act is to reduce the threat to public health and safety and to minimize the loss of life and property by identifying and mitigating seismic hazards (for example, those associated with strong ground shaking, liquefaction, landslides, other ground failures, or other hazards caused by earthquakes). Cities, counties, and state agencies are directed to use Seismic Hazard Zone Maps developed by the California Geological Survey in their land use planning and permitting processes. In accordance with the Seismic Hazards Mapping Act, site-specific geotechnical investigations must be performed prior to permitting most urban development projects within Seismic Hazard Zones.

California Integrated Seismic Network

The California Integrated Seismic Network (CISN) was formed in November 2000 to operate a reliable, modern, statewide system for earthquake monitoring, research, archiving, and distribution of information to benefit public safety, emergency response, and loss mitigation. The CISN seeks to mitigate the impact of future earthquakes by collecting, processing, and disseminating critical earthquake information in a timely manner.

Six organizations collaborate in the CISN to monitor earthquakes and collect data to support improvements to earthquake resilience. Core members of the CISN are the California Geological Survey, California Institute of Technology Seismological Laboratory, University of California–Berkeley Seismological Laboratory, USGS Menlo Park, USGS Pasadena, and California Governor's Office of Emergency Services. The CISN has three management centers with different responsibilities:

- Southern California Earthquake Management Center: California Institute of Technology and USGS Pasadena
- Northern California Earthquake Management Center: University of California–Berkeley and USGS Menlo Park
- Center for Engineering Strong Motion Data

The Northern and Southern California Earthquake Management Centers are twin earthquake processing centers. The engineering earthquake management center is primarily responsible for producing engineering data products.

California Building Code

The California Building Code (CBC), which is codified in Title 24 of the CCR, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, means of egress in facilities, and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable. The provisions of the CBC apply to the construction, alteration, movement, replacement, location, and demolition of every building and structure and any appurtenances connected or attached to such buildings or structures throughout California.

The 2022 edition of the CBC is based on the 2018 International Building Code published by the International Code Council. The code is updated triennially, and the 2022 edition of the CBC was published by the California Building Standards Commission in 2022, and took effect on January 1, 2023. The 2022 CBC contains general building design and construction requirements relating to fire and life safety, structural safety, and access compliance with some modifications and amendments of the previous publication. It further includes means for determining earthquake

loads, which is defined as the overall force to which a structure is subjected in supporting a weight or mass or in resisting externally applied forces (excess load or overloading may cause structural failure), and other loads (such as wind loads) for inclusion into building codes. Seismic design provisions of the CBC generally prescribe minimum lateral forces applied statically to the structure, combined with the gravity forces of the dead and live loads of the structure, which the structure must be designed to withstand. The prescribed lateral forces are generally smaller than the actual peak forces that would be associated with a major earthquake. Consequently, structures should be able to resist minor earthquakes without damage; resist moderate earthquakes without structural damage but with some nonstructural damage; and resist major earthquakes without collapse, but with some structural and nonstructural damage. Conformance to the current CBC recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake. However, it is reasonable to expect that a structure designed in accordance with the seismic requirements of the CBC should not collapse in a major earthquake.

The earthquake design requirements consider the occupancy category of the structure, site class, soil classifications, and various seismic coefficients, all of which are used to determine a seismic design category for a structure. The seismic design category is a classification system that combines the occupancy categories with the level of expected ground motions at the site; Seismic Design Categories ranges from A (very small seismic vulnerability) to E/F (very high seismic vulnerability and near a major fault). Seismic design specifications are determined according to the seismic design category in accordance with CBC Chapter 16. CBC Chapter 18 covers the requirements of geotechnical investigations (Section 1803); excavation, grading, and fills (Section 1804); load-bearing of soils (Section 1806); and foundations (Section 1808), shallow foundations (Section 1809), and deep foundations (Section 1810). For Seismic Design Categories D, E, and F, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil bearing capacity. It also addresses measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

Chapter 18 also describes analysis of expansive soils and the determination of the depth to groundwater table. Expansive soils are defined in the CBC as follows:

> **1803.5.3 Expansive Soil.** *In areas likely to have expansive soil, the building official shall require soil tests to determine where such soils do exist. Soils meeting all four of the following provisions shall be considered expansive, except that tests to show compliance with Items 1,2 and 3 shall not be required if the test prescribed in Item 4 is conducted:*

1. *Plasticity index (PI) of 15 or greater, determined in accordance with ASTM D 4318.*
2. *More than 10 percent of the soil particles pass a No. 200 sieve (75 micrometers), determined in accordance with ASTM D 422.*
3. *More than 10 percent of the soil particles are less than 5 micrometers in size, determined in accordance with ASTM D 422.*
4. *Expansion index greater than 20, determined in accordance with ASTM D 4829.*

Public Resources Code Section 5097.5 and Section 30244

Other state requirements for paleontological resource management are included in PRC Section 5097.5 and Section 30244. These statutes prohibit the removal of any paleontological site or feature from public lands without permission of the jurisdictional agency, define the removal of paleontological sites or features as a misdemeanor, and require reasonable mitigation of adverse impacts to paleontological resources from developments on public (state, county, city, district) lands.

Porter-Cologne Water Quality Control Act

Under the Porter-Cologne Water Quality Control Act, waters of the state fall under the jurisdiction of the appropriate Regional Water Quality and Control Board (RWQCB). Under the act, the RWQCB must prepare and periodically update water quality control basin plans. Each basin plan sets forth water quality standards for surface water and groundwater, as well as actions to control nonpoint and point sources of pollution to achieve and maintain these standards. Projects that affect wetlands or waters must meet waste discharge requirements of the RWQCB, which may be issued in addition to a water quality certification or waiver under CWA Section 401.

State Regional Water Quality Control Board, Stormwater General Construction Permit

The California State Water Resources Control Board (SWRCB) allocates water rights, adjudicates water right disputes, develops statewide water protection plans, establishes water quality standards, and guides the nine RWQCBs in the major watersheds of the state. The joint authority of water allocation and water quality protection enables the SWRCB to provide comprehensive protection of California's waters.

In 1999, the state adopted the NPDES General Permit for Storm Water Discharges Associated with Construction Activities (Construction General Permit) (SWRCB Order No. 2022-0057-DWQ, NPDES No. CAS000002). The Construction General Permit requires that construction sites with one acre or greater of soil disturbance, or less than one acre but part of a greater common plan of development, apply for coverage for discharges under the Construction General Permit by submitting a Notice of Intent (NOI) for coverage, developing a SWPPP, and implementing BMPs to address construction site pollutants.

The SWPPP should contain a site map that shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the proposed Project. The SWPPP must list the BMPs the discharger will use to protect stormwater runoff and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Section A of the Construction General Permit describes the elements that must be contained in a SWPPP. Enrollment under the Construction General Permit is through the Stormwater Multiple Application and Report Tracking System. Additionally, the SWRCB is responsible for implementing the CWA, and issues NPDES permits to cities and counties through the individual RWQCBs.

Local

Kern County General Plan

The Project site is located within the unincorporated area of Kern County and, therefore, the proposed Project is subject to the applicable goals, policies, and implementation measures of the KCGP. Applicable policies, goals, and implementation measures related to geology and soils are provided below.

Chapter 1. Land Use, Open Space, and Conservation Element

1.3—Physical and Environmental Constraints

Goals

Goal 1. To strive to prevent loss of life, reduce personal injuries, and property damage, minimize economic and social diseconomies resulting from natural disaster by directing development to areas which are not hazardous.

Policies

Policy 1. Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map Codes from 2.6 – 2.9, Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.

Implementation Measures

Measure D. Review and revise the County's current Grading Ordinance as needed to ensure that its standards minimize permitted topographic alteration and soil erosion while maintaining soil stability.

Measure N. Applicants for new discretionary development should consult with the appropriate Resource Conservation District and the California Regional Water Quality Control Board regarding soil disturbances issues.

1.10.3—Archaeological, Paleontological, Cultural, and Historical Preservation

Policies

Policy 25. The County will promote the preservation of cultural and historic resources that provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measure

Measure M. In areas of known paleontological resources, the County should address the preservation of these resources where feasible.

Chapter 4. Safety Element

4.1 Introduction

Goals

Goal 1. Minimize injuries and loss of life and reduce property damage.

4.3—Seismically Induced Surface Rupture, Ground Shaking, and Ground Failure

Policy

Policy 1. The County shall require development for human occupancy to be placed in a location away from an active earthquake fault in order to minimize safety concerns.

Implementation Measure

Measure B. Require geological and soils engineering investigations in identifying significant geologic hazard areas in accordance with the Kern County Code of Building Regulations.

Measure C. The fault zones designated in the Kern County Seismic Hazard Atlas should be considered significant geologic hazard areas. Proper precautions should be instituted to reduce seismic hazard, whenever possible in accordance with state and county regulations.

4.5—Landslides, Subsidence, Seiche, and Liquefaction

Policies

Policy 1. Determine the liquefaction potential at sites in areas of shallow groundwater (Map Code 2.3) prior to discretionary development and determine specific mitigation to be incorporated into the foundation design, as necessary, to prevent or reduce damage from liquefaction in an earthquake.

Policy 3. Reduce potential for exposure of residential, commercial, and industrial development to hazards of landslide, land subsidence, liquefaction, and erosion.

Implementation Measures

Measure D. Discretionary actions will be required to address and mitigate impacts from inundation, land subsidence, landslides, high groundwater areas, liquefaction and seismic events through the CEQA process.

Buttonwillow Community Development Plan (Specific Plan)

Site 1 is located within the area that is subject to the Buttonwillow Community Development Plan and, therefore, is subject to applicable policies and measures of the Buttonwillow Community Development Specific Plan. The Hazard Areas element mentions that there are no known earthquake faults or traces within the area that is subject to the Specific Plan, with the closest known fault lines residing approximately 5 miles southwest of Buttonwillow on the northern edge of Elk Hills. The Specific Plan does not include implementation measures specifically related to geologic hazards. However, the Specific Plan encourages protection of soils related to agricultural use within the Specific Plan area. (See Section 4.11, *Land Use and Planning*, of this Draft EIR.)

Kern County Code of Building Regulations—Title 17

All construction in Kern County is required to conform to the Kern County Building Code (Chapter 17.08, Building Code, of the Kern County Code of Regulations). The County has adopted the CBC (2022 Edition), with some modifications and amendments. The County has made local modifications, additions, and amendments to the codes as allowed, which were determined reasonably necessary because of local climatic, geological, or topographical conditions (prescribed in Title 17 of the Ordinance Code). The County's Code of Building Regulations applies to grading and new building construction, and to the installation of new mechanical, plumbing, and electrical systems.

Chapter 17.28 of Kern County Grading Code

The Kern County Grading Code (Chapter 17.28, Building Code, of the Kern County Code of Regulations) sets forth rules and regulations to control excavation, grading, and earthwork, including fills and embankments; establishes the administrative procedure for issuance of permits; and provides for approval of plans and inspection of grading construction. Sections of the County Grading Code that are particularly relevant to geology and soils are provided below.

Section 17.28.140 Erosion Control

A. Slopes. The faces of cut-and-fill slopes shall be prepared and maintained to control against erosion. This control may consist of effective planting. The protection for the slopes shall be installed as soon as practicable and prior to calling for final approval. Where cut slopes are not subject to erosion due to the erosion-resistant character of the materials, such protection may be omitted.

B. Other Devices. Where necessary, check dams, cribbing, riprap or other devices or methods shall be employed to control erosion and provide safety.

C. Temporary Devices. Temporary drainage and erosion control shall be provided as needed at the end of each workday during grading operations, such that existing drainage channels would not be blocked. Dust control shall be applied to all graded areas and materials and shall consist of applying water or another approved dust palliative for the alleviation or prevention of dust nuisance. Deposition of rocks, earth materials, or debris onto adjacent property, public roads, or drainage channels shall not be allowed.

Section 17.28.170 Grading Inspection

A. General. All grading operations for which a permit is required shall be subject to inspection by the building official. Professional inspection of grading operations and testing shall be provided by the civil engineer, soils engineer, and the engineering geologist retained to provide such services in accordance with Subsection 17.28.170(E) for engineered grading and as required by the building official for regular grading.

B. Civil Engineer. The civil engineer shall provide professional inspection within such engineer's area of technical specialty, which shall consist of observation and review as to the establishment of line, grade, and surface drainage of the development area. If revised plans are required during the course of the work, they shall be prepared by the civil engineer.

C. Soils Engineer. The soils engineer shall provide professional inspection within such engineer's area of technical specialty, which shall include observation during grading and testing for required compaction. The soils engineer shall provide sufficient observation during the preparation of the natural ground and placement and compaction of the fill to verify that such work is being performed in accordance with the conditions of the approved plan and the appropriate requirements of this chapter. Revised recommendations relating to conditions differing from the approved soils engineering and engineering geology reports shall be submitted to the permittee, the building official and the civil engineer.

D. Engineering Geologist. The engineering geologist shall provide professional inspection within such engineer's area of technical specialty, which shall include professional inspection of the bedrock excavation to determine if conditions encountered are in conformance with the approved report. Revised recommendations relating to conditions differing from the approved engineering geology report shall be submitted to the soils engineer.

E. Permittee. The permittee shall be responsible for the work to be performed in accordance with the approved plans and specifications and in conformance with the provisions of this Code, and the permittee shall engage consultants, if required, to provide professional inspections on a timely basis. The permittee shall act as a coordinator between the consultants, the contractor and the building official. In the event of changed conditions, the permittee shall be responsible for informing the building official of such change and shall provide revised plans for approval.

F. Building Official. The building official may inspect the project at the various stages of the work requiring approval to determine that adequate control is being exercised by the professional consultants.

G. Notification of Noncompliance. If, in the course of fulfilling their responsibility under this chapter, the civil engineer, the soils engineer, or the engineering geologist finds that the work is not being done in conformance with this chapter or the approved grading plans, the discrepancies shall be reported immediately in writing to the permittee and to the building official. Recommendations for corrective measures, if necessary, shall also be submitted.

H. Transfer of Responsibility. If the civil engineer, the soils engineer, or the engineering geologist of record is changed during the course of the work, the work shall be stopped until:

1. The civil engineer, soils engineer, or engineering geologist has notified the building official in writing that they will no longer be responsible for the work and that a qualified replacement has been found who will assume responsibility.

2. The replacement civil engineer, soils engineer, or engineering geologist notifies the building official in writing that they have agreed to accept responsibility for the work.

Water Quality Control Plan for the Tulare Lake Basin

Each of the nine RWQCBs adopts a Water Quality Control Plan which recognizes and reflects regional differences in existing water quality, the beneficial uses of the region's groundwater and surface waters, and local water quality conditions and problems. Water quality problems in the regions are listed in these plans, along with the causes, if they are known. The Project site is subject to the Water Quality Control Plan for the Tulare Lake Basin (or Basin Plan; California Regional Water Quality Control Board Central Valley Region 2018). Each RWQCB establishes water quality objectives that will ensure the reasonable protection of beneficial uses and the prevention of nuisance, with the understanding that water quality can be changed somewhat without unreasonably affecting beneficial uses.

Kern County Public Works Department

The Kern County Public Works Department requires the completion of an NPDES applicability form for all construction projects disturbing one or more acre within Kern County. This form requires the applicant to provide background information on construction activities. Applicants must apply for the permit under one of the following four conditions:1. All stormwater is retained on-site and no storm water runoff, sediment, or pollutants from on-site construction activity can

discharge directly or indirectly off-site or to a river, lake, stream, municipal storm drain, or off-site drainage facilities.

1. All stormwater runoff is not retained on-site but does not discharge to a water of the United States (that is, drains to a terminal drainage facility). Therefore, a SWPPP has been developed and BMPs must be implemented.

2. All stormwater runoff is not retained on-site, and the discharge is to a water of the United States. Therefore, an NOI must be filed with the State Regional Water Resources Control Board prior to issuance of the building permit. Also, a SWPPP has been developed and BMPs must be implemented.

3. Construction activity is between one and 5 acres and an Erosivity Waiver was granted by the SWRCB. BMPs must be implemented.

Kern County Public Health Services On-site Wastewater Treatment System Permitting

The Kern County Public Health Services Department is responsible for permitting, inspecting, and approving on-site wastewater treatment systems, including septic tank wastewater disposal systems. The Kern County Public Health Services Department enforces leach line requirements, seepage pit requirements, percolation testing standards, and other regulations for land development related to wastewater treatment systems.

4.7.4 Impacts and Mitigation Measures

This section describes the: methodology used in conducting the CEQA impact analysis regarding geology, paleontological resources, and soils resources; thresholds of significance used in assessing impacts to these subjects; and assessment of impacts regarding these subjects, including relevant mitigation measures.

Methodology

The analysis in this section is largely based on a review of existing literature including, but not limited to, the *Paleontological Resources Inventory Memorandum for the Buttonbush Solar and Storage Project, Unincorporated Kern County, California* (Dudek 2024) and the *Desktop Geotechnical Site Assessment Report* (Kleinfelder 2025). Published geological maps and published and unpublished reports were reviewed to identify geological units within the Project site and determine their paleontological sensitivity.

Paleontological surveys were conducted between January 17, 2023, and March 10, 2023. The purpose of the survey was to ascertain if any fossils were present on the surface and confirm geological mapping. The survey was conducted with transects spaced no more than 20 meters (m) apart and oriented along the Project alignment. A GPS receiver with sub-meter accuracy and loaded with a shapefile of the Project site boundary was used to verify the accuracy of the survey coverage. Evidence for buried paleontological resources was opportunistically sought through inspection of

erosion/excavation exposures and the spoils from rodent burrows. Field recording and photo documentation of resources were completed as appropriate.

A paleontological records search request was sent to the LACM on November 17, 2022. The purpose of the records search was to determine whether there are any known fossil localities in or near the Project site to aide in determining whether a paleontological mitigation program is warranted to avoid or minimize potential adverse effects of construction on paleontological resources (Appendix G).

This section describes the proposed Project's potential impacts regarding geology, paleontological resources, and soils resources. This analysis first established baseline conditions for the affected environment relevant to these subjects, as presented above in Section 4.7.2, *Environmental Setting.*

Thresholds of Significance

The County CEQA Implementation Document and Environmental Checklist state that a project would have a significant impact regarding geology, paleontological resources, and/or soils resources, if it would:

Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

- Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the state geologist for the area or based on other substantial evidence of a known fault;
- Strong seismic ground shaking;
- Seismic-related ground failure, including liquefaction;
- Landslides.
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property;
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater; and
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Project Impacts

Impact 4.7-1: Would the Project directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving the rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the state geologist for the area or based on other substantial evidence of a known fault?

The Project site is not located within a state-designated Alquist-Priolo Earthquake Fault Zone; however, as discussed above, there are numerous active earthquake faults in the vicinity of the Project site the largest of which is the San Andreas Fault Zone. Although there are known active faults surrounding the Project site, the solar facilities and associated infrastructure are not anticipated to penetrate any fault lines. The distance between surrounding fault lines and the site makes it improbable that the proposed Project would cause fault rupture that would cause substantial adverse effects within the Project site.

While unlikely, penetrations through the confining layers are possible, as are undetected, sub-seismic faults and fracture networks. However, construction of the proposed Project would be subject to applicable ordinances of the Kern County Building Code (Chapter 17.08). The County has adopted the CBC 2022 Edition (CCR Title 24), which incorporates substantially the same requirements as the International Building Code (2018 Edition), with some modifications and amendments. Compliance with these regulations would avoid impacts involving these geologic hazards which otherwise could occur.

Proposed Project operations would primarily include above ground activities including security, vegetation management, permit compliance, and project repairs as needed. Trenching and excavations (for example, excavations to remove and replace equipment), may be required for maintenance purposes. However, these ground disturbance activities are unlikely to induce a seismic event. Adherence to all applicable regulations would reduce any potential fault rupture impacts for the proposed Project.

PG&E Midway (Midway) Substation Upgrades

The proposed Project includes enlarging the Midway Substation's 500-kilovolt (kV) yard within the Pacific Gas and Electric (PG&E)-owned Midway Substation property boundaries. The Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities as part of the proposed Project. PG&E may install two four-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest of the Midway Substation property. Other activities include: installing up to nine, 67.5 cubic feet underground substructure vaults along the conduit trenches; removing an existing precast security wall at the northwest side of the Midway Substation and replacing it with a new 12-foot wall; grading of the connection area; installing approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker; equipment foundations and

concrete trenches; equipment cabinets; bus structures; communication lines; conduits; pull boxes; and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the Point of Change of Ownership for the proposed Project. Up to four approximately 175-foot-tall lattice steel towers or tubular steel poles would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads. For a detailed description of the Midway Substation upgrades, see Section 3.0, *Project Description.*

As stated above, the Project site—including, but not limited to, the Midway Substation site—is not located within a state-designated Alquist-Priolo Earthquake Fault Zone, but is located within the vicinity of numerous active earthquake faults, the largest of which is the San Andreas Fault Zone. However, development of the Midway Substation site is not anticipated to penetrate any fault lines and cause fault rupture given the distance between surrounding fault lines and the site.

While unlikely, penetrations through the confining layers are possible, as are undetected, sub-seismic faults and fracture networks. However, construction of the Midway Substation upgrades would be subject to applicable ordinances of the Kern County Building Code (Chapter 17.08) and, by reference, the CBC 2022 Edition (CCR Title 24), which has substantially the same requirements as the International Building Code (2018 Edition). Compliance with these regulations would avoid impacts involving these geologic hazards which otherwise could occur.

Operations involving the Midway Substation primarily would include above ground activities including security, vegetation management, and project repairs as needed. Trenching and excavations (for example, excavations to remove and replace equipment), may be required for maintenance purposes. However, these ground disturbance activities are unlikely to induce a seismic event. Adherence to all applicable regulations would reduce any potential fault rupture impacts for the proposed Project.

Summary

With adherence to applicable ordinances of the Kern County Building Code (Chapter 17.08) and, by reference, the CBC 2022 Edition (CCR Title 24), impacts regarding fault rupture would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Less than significant.

Impact 4.7-2: Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

As stated above, the Premier Fault Zone is located approximately 15 miles east of the Project site, San Andreas Fault Zone is located approximately 25 miles west of the Project site, and White Wolf Fault is located 34 miles southeast of the Project site. The region is influenced by several fault systems, most notably the San Andreas Fault, capable of generating strong ground motions that could affect the Project site and surrounding areas. Some ground shaking is likely at the site during a major earthquake on one of the nearby faults. Although there are known active faults surrounding the Project site, the solar facilities and associated infrastructure are not anticipated to penetrate any fault lines. Depending on the magnitude, distance to the source, and duration of shaking, structural damage and injury to workers or visitors within the Project site could occur.

As described below, Mitigation Measure MM 4.7-1 would require a final design-level geotechnical report evaluating soil conditions and geologic hazards, performed by a California licensed geotechnical engineer consistent with CBC requirements. Mitigation Measure MM 4.7-1 also would require a California geotechnical engineer be hired by the Project proponent to design project facilities to withstand probable seismically induced ground shaking. All grading and construction on-site would adhere to the specifications, procedures, and site conditions contained in the final design plans, which would be fully compliant with the seismic recommendations provided by the California-registered professional engineer in accordance with California and Kern County Building Code requirements. The required measures would encompass site preparation, foundation specifications, and protection measures for any buried metal. The final structural designs would be subject to approval and follow-up inspection by the Kern County Building Inspection Department. Final design requirements would be provided to the on-site construction supervisor and the Kern County Building Inspector to ensure compliance. A copy of the design would be submitted to the Kern County Public Works Department for review and approval. Further, the facilities would be constructed in accordance with all applicable codes, which require property line and public roadway setbacks that would protect the general public and on-site staff from potential hazards associated with the facilities that could result from an earthquake.

Midway Substation Upgrades

As described above in Impact 4.1-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed photovoltaic (PV) solar facilities with the Midway Substation. As is the case for the other features of the proposed Project, the Midway Substation site is located within the vicinity of known active faults but involves development that is unlikely to penetrate any fault lines. However, depending on the magnitude, distance to the source, and duration of shaking, structural damage and injury to workers or visitors within the Midway Substation site could occur. Therefore, development of the Midway Substation site would be subject to Mitigation Measure MM 4.7-1.

Summary

As stated above, the proposed Project is located within the vicinity of known active faults but involves development that is unlikely to penetrate any fault lines. Regardless, the Project site is likely to experience shaking that could cause potentially significant impacts involving structural damage and injury to workers. Implementation of Mitigation Measure MM 4.7-1 would ensure that these impacts regarding seismic hazards would be minimized to a less than significant level.

Mitigation Measures

MM 4.7-1: Prior to the issuance of building or grading permits for the project, the project proponent shall conduct a final engineering design specific geotechnical study in accordance with all applicable ordinances of the Kern County Building Code (Chapter 17.08) and the CBC to evaluate soil conditions and geologic hazards on the project site and submit it to the Kern County Public Works Department for review and approval.

a. The final geotechnical study must be signed by a California-registered and licensed professional geotechnical engineer or engineering geologist and must include, but not be limited to, the following:

   1. Location of fault traces and potential for surface rupture and ground shaking potential;
   2. Maximum considered earthquake and associated ground acceleration for design;
   3. Potential for seismically induced liquefaction, landslides, differential settlement, and unstable soils;
   4. Stability of any existing or proposed cut-and-fill slopes;
   5. Collapsible or expansive soils;
   6. Foundation material type;
   7. Potential for wind erosion, water erosion, sedimentation, and flooding;
   8. Location and description of unprotected drainage that could be impacted by the proposed development; and
   9. Recommendations for placement and design of facilities, foundations, and remediation of unstable ground.

b. The project proponent shall determine the final siting of project facilities based on the results of the geotechnical study and implement recommended measures to minimize geologic hazards. The project proponent shall not locate project facilities on or immediately adjacent to an active fault trace. All structures shall be offset at least 100 feet from any mapped fault trace. Alternatively, a detailed fault trenching investigation may be performed to accurately locate the fault trace(s) to avoid siting improvements on or close to these fault structures and

to evaluate the risk of fault rupture. After locating the fault, accurate setback distances can be proposed.

c. The final geotechnical report shall be submitted for review and approval by the Kern County Public Works Department. The Kern County Public Works Department shall evaluate any final facility siting design developed prior to the issuance of any building or grading permits to verify that geological constraints have been avoided. Final design requirements shall also be provided to the on-site construction supervisor and the Kern County Building Inspector to ensure compliance. A copy of the approved design shall be submitted to the Kern County Planning and Natural Resources Department.

Level of Significance after Mitigation

Less than significant.

Impact 4.7-3: Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

As stated above, although there are known active faults surrounding the Project site, the solar facilities and associated infrastructure are not anticipated to penetrate any fault lines. However, the proximity of existing active faults to the Project site presents the potential for seismic ground shaking, which could result in adverse effects if underlain by subsurface materials susceptible to liquefaction. As stated above in Section 4.7.2, *Environmental Setting*, the nearest mapped landslide and liquefaction zone is located in the Lake Hughes and Little Buttes Quadrangles, both approximately 70 miles southeast of the Project site (CGS 2025). Should liquefiable materials be present at the Project site, damage to the PV modules and other ancillary facilities could result, and construction workers and employees could be exposed to potential adverse effects.

Seismically induced liquefaction occurs when loose, water-saturated sediments of relatively low density are subjected to cyclic shaking that causes soils to lose strength or stiffness because of increased pore water pressure. Locations considered most susceptible to liquefaction are those underlain by loose, water-saturated sediments within 50 feet of the ground surface. Structures founded on or above potentially liquefiable soils may experience bearing capacity failures due to the temporary loss of foundation support, vertical settlements (both total and differential), and/or undergo lateral spreading. Although areas that have Seismic Hazard Zones for liquefaction or landslides within the Project site are unlikely to be present, other historical data indicates a potential for liquefaction due to the likely presence of shallow groundwater in the Project site, increasing the potential for liquefaction to occur during strong ground shaking during an earthquake. As shown in the KCGP Safety Element (Figure 14), shallow groundwater has been identified surrounding the Project site and, consequently, there is the potential for seismic-related ground failure due to liquefaction of soils.

Pursuant to Mitigation Measure MM 4.7-1, the Project proponent would be required to perform a design-level geotechnical report that would evaluate geologic hazards, including evaluation of site-specific liquefaction potential and soil strength of the proposed Project. These design requirements would comply with CBC, Kern County Building Code, and State of California design standards, Chapter 16, which are required by law for all new structures in Kern County. These design standards and codes were established to reduce the potential impacts to structures from seismic-related ground failure, including liquefaction.

Midway Substation Upgrades

As described above in Impact 4.1-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. As stated above, there are known active faults surrounding the Midway Substation, but the development involving the Midway Substation site is not anticipated to penetrate any fault lines. However, given its location within an area that is susceptible to ground shaking and liquefaction, development of the Midway Substation has the potential to experience liquefaction hazards warranting implementation of Mitigation Measure MM 4.7-1.

Summary

As stated above, development of the proposed solar facilities and associated infrastructure are not anticipated to penetrate any fault lines, but will be located within an area that is susceptible to ground shaking and potential structural failure and harm to workers due to liquefaction of soils. This is considered a potentially significant impact that can reduced with the implementation of Mitigation Measure MM 4.7-1.

Mitigation Measures

Implement Mitigation Measure MM 4.7-1, as described above.

Level of Significance after Mitigation

Less than significant.

Impact 4.7-4: Would the Project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

A landslide is the down-gradient movement of earth material along a slope or hillside. Strong ground shaking has the potential for activating landslides on hillsides; slope failures on creek banks; and tension cracking in areas underlain by loose, low-density soil, such as extensive fill. During construction of the proposed Project, destabilization of such slopes, if present, could occur as a result of excavation and/or grading activities. Unmapped landslides and areas of localized slope instability may also be encountered. Excavation operations associated with facility construction and grading operations for temporary and permanent access roads and construction activities in

areas of hilly or sloping terrain, if present, could result in slope instability, landslides, soil creep, or debris flows.

However, the Project site and surroundings are predominantly flat to gently sloping. Little topographic variation is exhibited across the Project site. The potential hazard of loss, injury, or death involving landslides is low, given the topography and lack of development on, and surrounding, the Project site. Further, project design and construction would be required to comply with the CBC, including setback requirements of the CBC Section 1808.7, and State of California design standards, Chapter 16, which are required by law for all new structures in Kern County.

Midway Substation Upgrades

As described above in Impact 4.1-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. Similar to other areas of the Project site, the Midway Substation site is relatively flat and does not exhibit topographic variation. Further, development within the Midway Substation site would be subject to the setback requirements of the CBC Section 1808.7, and State of California design standards, Chapter 16.

Summary

Therefore, given the Project site's topography, lack of development on, and surrounding, the Project site, and compliance with CBC requirements, potential hazard of loss, injury, or death involving landslides is low and impacts regarding landslides would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Less than significant.

Impact 4.7-5: Would the Project result in substantial soil erosion or the loss of topsoil?

According to the KCGP Safety Element, the Project site is not located in a zone that is prone to soil erosion. Erosion and sedimentation are natural processes that occur on slopes, hillsides, and natural drainages. The Project site is primarily flat, which minimizes the possibility for the formation of significant rills or gullies by water. However, there is the potential for soils to be eroded by wind and project construction earthwork.

Over 95% of the Project site has been disturbed by previous and ongoing agricultural activities. Construction of the proposed project facilities and associated improvements would involve ground disturbance that could expose soils to the effects of wind or water erosion. Although the Project

site and surrounding area consist of relatively flat topography, the proposed Project would involve grading, vegetation removal, and other soil disturbance from construction activities which could contribute to soil loss and erosion. As described in Chapter 3, *Project Description*, of this Draft EIR, a SWPPP would be prepared and implemented per the requirements of the NPDES Construction General Permit. The SWPPP would detail that existing vegetation and topography are to be preserved to the maximum extent possible. The SWPPP would also specify various types of BMPs, including erosion control BMPs, to prevent soil from moving off-site. The proposed Project would further adhere to all temporary erosion control measures required by the Kern County Grading Code (Chapter 17.28.140). This includes implementation of various measures designed to prevent erosion and control drainage on-site, thereby further preventing potential sedimentation of on- and off-site drainages. Compliance with these requirements would ensure that the proposed Project would not result in substantial soil erosion or loss of topsoil. Impacts would be less than significant.

In addition, per Mitigation Measure MM 4.7-1, the Project proponent would be required to submit a design-level geotechnical study to the Kern County Public Works Department, inclusive of a geotechnical study signed by a California-registered and licensed professional geotechnical engineer or engineering geologist, pursuant to the Kern County Building Code (Section 17.08). The Project proponent would be required to design final siting and implement recommended measures based on the study, in order to obtain required building and grading permits. Compliance with this mitigation measure and performance standards within the Grading Code would ensure that excessive grading does not occur.

Project operations would include the periodic cleaning of the solar panels with water. However, this is not expected to result in soil erosion because of the infrequency of these activities and the limited volumes of water involved; water is expected to infiltrate into the ground and not generate substantial erosion or soil loss. Moreover, Project operations would use less water than the existing agricultural uses. Project operations would not require ground disturbance of area which has not previously been subjected to disturbance.

Midway Substation Upgrades

As described above in Impact 4.1-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. As stated above, the Project site, including, but not limited to, the Midway Substation site, is not located in a zone that is prone to soil erosion as it is relatively flat. There is potential for soils to experience erosion from wind and project construction earthwork; however, erosion would be minimized with implementation of the BMPs that would be set forth in the SWPPP and compliance with the recommendations and design features which would be set forth in the geotechnical study to prevent excessive grading from occurring. In addition to these requirements, PG&E has adopted BMPs (Appendix M) that apply to all PG&E construction projects, which include a BMP (BMP 10) that includes additional requirements that must be satisfied for the purpose of minimizing soil erosion.

Summary

Given the Project site's topography, as well as the requirements of the NPDES Construction General Permit and Kern County Building Code that would apply to the proposed Project, grading activities are unlikely to cause substantial soil erosion or the loss of topsoil. Further, project operations would involve infrequent use of water for solar maintenance activities and are unlikely to result in soil erosion or loss of topsoil. Therefore, impacts involving erosion and loss of topsoil would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.7-1, as described above and Mitigation Measure MM 4.10-1 (Section 4.10, *Hydrology and Water Quality*, of this Draft EIR).

Level of Significance after Mitigation

Less than significant.

Impact 4.7-6: Would the Project be located on a geologic unit or soil that is unstable, or become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

As stated above regarding Impact 4.7-4, due to the relatively flat topography of the Project site, the risk of on-site or off-site landslides associated with development of the proposed Project is considered negligible. Further, the Project proponent would be required to perform a design-level geotechnical report (Mitigation Measure MM 4.7-1) to address potential soil stability impacts and prescribe specific design requirements to address potential impacts related to unstable soils, such as lateral spreading, subsidence, and liquefaction, through application of geotechnical engineering standards given site-specific conditions. These design requirements would comply with CBC and State of California design standards (Chapters 16 and 18), which are required by law for all new structures in Kern County. The design-level geotechnical report would be required per Mitigation Measure MM 4.7-1 prior to the issuance of any building or grading permits. In addition, project construction and operation would not cause or exacerbate the potential for unstable geologic units or soil as a result of landslide, lateral spreading, subsidence, liquefaction, or collapse.

Midway Substation Upgrades

As described above in Impact 4.1-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. As is the case for grading that would occur in other areas of the Project site, grading associated with the Midway Substation upgrades would be implemented pursuant to the geotechnical report for the proposed Project, which would prescribe specific design requirements based on engineering standards and site-specific conditions to avoid potential impacts regarding unstable soils (for example, hazards from lateral spreading, subsidence, and liquefaction).

Summary

Given the relatively flat topography of the Project site, the proposed Project is unlikely to result in risks associated with landslides. In addition, compliance with specifications set forth in a site-specific geotechnical engineering report that is prepared pursuant to the requirements of the CBC and State of California design standards would avoid creating significant impacts associated with lateral spreading, subsidence, liquefaction, or collapse. Impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.7-1, as described above.

Level of Significance after Mitigation

Less than significant.

Impact 4.7-7: Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Expansive soils are fine-grained soils (generally high plasticity clays) which can undergo a significant increase in volume with an increase in water content and a significant decrease in volume with a decrease in water content. Changes in the water content of a highly expansive soil can result in severe distress to structures constructed on or against the soil. Project implementation within an area of expansive soils can lead to a shrink/swell behavior of the soils that could cause potential adverse effects over time if not addressed appropriately prior to construction.

Clay-rich material is present in the subsurface at the Project site and may have a low to medium expansion potential (Kleinfelder 2025). However, as described above, Mitigation Measure MM 4.7-1 requires that a design-level geotechnical report be performed by a qualified geotechnical engineer regarding the Project site to identify any collapsible or expansive soils which could present geologic hazards. Mitigation Measure MM 4.7-1 requires that a California geotechnical engineer provide an evaluation for expansive soils and provide recommendations consistent with CBC requirements to reduce potential adverse effects from expansive soils. All grading and construction on-site would adhere to the specifications, procedures, and site conditions contained in the final design plans, which would be fully compliant with the recommendations provided by the California-registered professional engineer in accordance with California and Kern County Building Code requirements. The required measures would encompass site preparation, such as treatment of expansive soils or replacement with engineered fill. The final designs would be subject to approval and follow-up inspection by the Kern County Public Works Department. Final design requirements would be provided to the on-site construction supervisor and the Kern County Building Inspector to ensure compliance. In addition, project construction and operation would not cause or exacerbate the potential for soil expansion to occur.

Midway Substation Upgrades

As described above in Impact 4.1-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. As is the case for development in other locations of the Project site, development of the Midway Substation upgrades would involve grading within clay-rich material that has low to medium expansion potential. Therefore, grading would be subject to the design recommendations of the design-level geotechnical report, Mitigation Measure MM 4.7-1, and inspection and approval procedures described above.

Summary

Although the proposed Project involves grading soils with clay-rich material with low to medium expansion potential, compliance with a design-level geotechnical report that complies with CBC and Kern County Building Code requirements would avoid the creation of a significant impact associated with development on such soils. In addition, implementation of Mitigation Measure MM 4.7-1 would further reduce potential impacts. Therefore, impacts associated with risks to life and/or property from development on expansive soils would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.7-1, as described above.

Level of Significance after Mitigation

Less than significant.

Impact 4.7-8: Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

As described in Chapter 3, *Project Description*, of this Draft EIR, the proposed Project would include development of septic systems for the O&M buildings. If not designed correctly, septic systems could result in adverse health impacts, adversely affect biological resources, and pollute groundwater.

However, the proposed Project's septic systems would be constructed to comply with applicable requirements that the Kern County Environmental Health Services Division enforces. The proposed septic systems are anticipated to be located away from surface drainages and protected from potential surface runoff, in accordance with Kern County laws, ordinances, regulations, and standards. The septic systems and leach fields would be sized according to the number of employees. Proper siting and design of the leach fields would minimize the potential for a health or environmental impact from flooding. Mitigation Measure MM 4.7-2 would require the proposed Project operator to obtain all required permits and approvals from the Kern County Environmental Health Services Division and to implement all required conditions regarding the design and siting

of the septic system and leach fields. Implementation of Mitigation Measure MM 4.7-2 would reduce potential impacts to less than significant.

Midway Substation Upgrades

The Midway Substation upgrades do not include the installation of an alternative wastewater disposal system.

Summary

The proposed Project involves the installation of septic systems for O&M workers' use during proposed Project operations, which could result in potentially significant but mitigable impacts to human health, biological resources, and groundwater. However, implementation of Mitigation Measure MM 4.7-2 which would require the Project Proponent to design, install, and maintain the private septic systems in compliance with applicable building code requirements would reduce impacts to a less than significant level.

Mitigation Measures

MM 4.7-2: Prior to issuance of any building permit for the operation and maintenance facilities, the project operator shall obtain all required permits and approvals from the Kern County Environmental Health Services Division and shall implement all required conditions regarding the design and siting of septic systems.

Level of Significance after Mitigation

Less than significant.

Impact 4.7-9: Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, as defined in CEQA guidelines Section 15064?

Direct impacts to paleontological resources primarily concern the potential destruction of nonrenewable paleontological resources and the loss of information associated with these resources. This includes the unauthorized collection of fossil remains. If potentially fossiliferous bedrock or surficial sediments are disturbed, the disturbance could result in the destruction of paleontological resources and subsequent loss of information.

A significant impact to paleontological resources will occur if a project "directly or indirectly destroy[s] a significant paleontological resource or unique geologic feature" (CEQA Guidelines Section 15064). In general, for projects that are underlain by paleontologically sensitive geologic units, the greater the amount of ground disturbance, the higher the potential for significant impacts to paleontological resources. For projects that are directly underlain by geologic units with no paleontological sensitivity, there is no potential for impacts to paleontological resources unless the proposed project adversely affects sensitive geologic units that underlie the non-sensitive unit.

No paleontological resources were identified within the Project site as a result of the paleontological survey, institutional records search, or desktop geological and paleontological review. No unique geological features are present on-site. The LACM's paleontological records search revealed the existence of five nearby fossil localities. The Pleistocene to Pliocene nonmarine sediments have high paleontological sensitivity throughout their geographic and stratigraphic extent; recent alluvial fan and basin deposits have low paleontological sensitivity on the surface, increasing with depth. Based on the records search, survey results, and map and literature review, ground disturbance (for example, grading) activities in areas underlain by Pleistocene to Pliocene nonmarine sediments and at an undetermined depth in areas underlain by recent alluvial fan and basin deposits, have high potential to encounter and potentially damage paleontological resources.

Midway Substation Upgrades

As described above in Impact 4.1-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. Similar to other areas of the Project site, the Midway Substation site, no paleontological resources or unique geological features are known to exist on-site. However, interconnection of the gen-tie line would entail auguring to install poles and a circuit bay which could encounter Pleistocene to Pliocene nonmarine sediments that have high potential to encounter and potentially damage paleontological resources.

Summary

Although no paleontological or unique geological features are known to exist at the Project site, grading and other ground disturbance activities that occur at depths that encounter Pleistocene to Pliocene nonmarine sediments have high potential to encounter and potentially damage paleontological resources. This is a potentially significant impact that can be reduced to a less than significant level with implementation of Mitigation Measures MM 4.7-3 through 4.7-5.

Mitigation Measures

MM 4.7-3: The project proponent shall retain a qualified paleontologist, defined as a paleontologist meeting the Society for Vertebrate Paleontology's Professional Standards to carry out all mitigation measures related to paleontological resources. The qualified paleontologist and lead archaeologist may be the same individual.

a. Prior to the start of any ground-disturbing activities, the qualified paleontologist shall prepare a Paleontological Resources Worker Environmental Awareness Program (WEAP) program for all construction personnel working on the project. A Paleontological Resources WEAP Guide approved by the qualified paleontologist shall be provided to all personnel. A copy of the Paleontological Resources WEAP Guide shall be submitted to the Kern County Planning and Natural Resources Department. The training guide may be presented in video form.

b. The Paleontological Resources WEAP may be conducted in conjunction with other awareness training requirements.

c. The training shall include an overview of potential paleontological resources that could be encountered during ground-disturbing activities to facilitate worker recognition, avoidance, and subsequent immediate notification to the qualified paleontologist for further evaluation and action, as appropriate; and penalties for unauthorized artifact collecting or intentional disturbance of paleontological resources.

d. The Paleontological Resources WEAP Guides shall be kept on-site and available for all personnel to review and be familiar with as necessary.

MM 4.7-4: During construction, the qualified paleontologist or designated monitor shall monitor all ground-disturbing activities (with the exception of vibratory or hydraulic installation of tracking or mounting structures and foundations or supports) that occurs at a depth of 15 feet or deeper below ground surface.

The qualified paleontologist shall have authority to temporarily divert excavation operations away from exposed fossils to collect associated data and recover the fossil specimens if deemed necessary.

Following completion of monitoring, the paleontologist shall prepare a report documenting the absence or discovery of fossil resources on-site. If fossils are found, the report shall summarize the results of the inspection program, identify those fossils encountered, discuss recovery and curation efforts, and provide the methods used in these efforts, as well as describe the fossils collected and their significance. A copy of the report shall be provided to the Kern County Planning and Natural Resources Department and to an appropriate repository, such as the Natural History Museum of Los Angeles County**.**

MM 4.7-5: If a paleontological resource is found, the project contractor shall cease ground-disturbing activities within 50 feet of the find. The qualified paleontologist shall evaluate the significance of the resources and recommend appropriate treatment measures. At each fossil locality, field data forms shall be used to record pertinent geologic data, stratigraphic sections shall be measured, and appropriate sediment samples shall be collected and submitted for analysis. Any fossils encountered and recovered shall be catalogued and donated to a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County. Accompanying notes, maps, and photographs shall also be filed at the repository.

Level of Significance after Mitigation

Less than significant.

4.7.5 Cumulative Impacts and Mitigation Measures

Impacts of the proposed Project would be cumulatively considerable if they have the potential to combine with other past, present, or reasonably foreseeable projects to become significant. Cumulative projects listed in **Table 3-4:** *Cumulative Projects List*, would be subject to relatively similar seismic hazards as those of the proposed Project.

Development of the proposed Project, with implementation of the regulatory requirements and Mitigation Measure MM 4.7-1 discussed above, would result in less than significant impacts related to exposing persons or structures to geology, soils, or seismic hazards. The effects of these projects would not create cumulative impacts regarding geological and/or soils hazards as they are site specific and only would have the potential to combine with impacts of the proposed Project if they occur in the same location as the proposed Project. Geologic and soil conditions vary widely within a short distance of the region, making the cumulative context for potential impacts resulting from exposing people and structures to related risks one that is more localized or even site specific. Therefore, the proposed Project, combined with past, present, and other foreseeable development in the area, would not result in a cumulatively significant impact by directly or indirectly causing potential substantial adverse effects, including fault rupture, strong seismic ground shaking, or seismic-related ground failure, including liquefaction, lateral spreading, and landslides. Similarly, because geologic hazard impacts are site specific, the proposed Project would not make a cumulatively considerable contribution to a significant cumulative impacts related to subsidence, soil collapse, or expansive soils.

Impacts associated with surficial deposits, namely erosion and sediment deposition, can combine to create cumulative impacts, depending on the type and amount of development proposed in a given geographical area. The cumulative setting for consideration of soil erosion impacts consists of existing, planned, proposed, and reasonably foreseeable land use conditions in the region. However, hazardous conditions are primarily identified based on specific sites within a proposed development and on the soil characteristics and topography of each site. Individual projects are required to comply with applicable codes, standards, and permitting requirements (for example, preparation of a SWPPP) to mitigate erosion impacts. As such, the Project proponent must design the proposed Project to comply with these codes, standards, and permitting requirements which Mitigation Measure MM 4.7-1 and Mitigation Measures MM 4.7-3 through MM 4.7-5 would augment. Other projects included in the analysis of cumulative impacts would be required to adhere to similar requirements, thereby minimizing cumulative erosion impacts. Projects in the vicinity of the Project site will be subject to environmental review, must conform to the KCGP and Building Code, and—if required—would be subject to additional mitigation for seismic hazards to ensure soil stability, especially related to seismically induced erosion. Finally, with implementation of Mitigation Measure MM 4.7-1, and Mitigation Measure MM 4.7-3 through MM 4.7-5, the proposed Project would not make a cumulatively considerable contribution to cumulative impacts related to substantial soil erosion or loss of topsoil.

Septic systems and related infrastructure associated with projects included in the analysis of cumulative impacts must comply with applicable codes, standards, and permitting requirements that the Kern County Environmental Health Services Division enforces. Regarding the proposed Project's potential to be located on soils incapable of adequately supporting the use of septic tanks, Mitigation Measure MM 4.7-2 would require the Project operator to obtain all required permits and approvals from the Kern County Environmental Health Services Division and comply with all required conditions regarding the design and siting of the septic system and leach fields. Therefore, the proposed Project will not make a cumulatively considerable contribution to cumulative impacts involving the use of septic systems and related infrastructure.

As previously discussed, risk of on-site or off-site landslides associated with development of the proposed Project are considered negligible. In addition, the potential for liquefaction and other geologic hazards related to liquefaction, including lateral spreading, are also considered low because of the flat topography of the Project site. Further, the nearest mapped landslide and liquefaction zone is located in the Lake Hughes and Little Buttes Quadrangles, both approximately 70 miles southeast of the Project site (CGS 2025) and, if areas of shallow groundwater exist on-site, liquefaction hazards are site specific and do not combine to become cumulatively considerable. Collapse likely would be negligible in the areas surrounding the Project site. As with the proposed Project, other projects included in the analysis of cumulative impacts must comply with applicable building code requirements and if warranted based on the environmental review of the projects, would be subject to mitigation measures similar to Mitigation Measure MM 4.7-1 which requires a design-level geotechnical investigation and implementation of specific measures based on-site-specific data. Finally, with implementation of Mitigation Measure MM 4.7-1, the proposed Project would not make a cumulatively considerable contribution to a significant cumulative impacts related to on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse.

With regard to expansive soils, the proposed Project would be subject to Mitigation Measure MM 4.7-1, which requires a California licensed geotechnical engineer or engineering geologist to prepare a site-specific geotechnical study that evaluates soil conditions and geologic hazards. The geotechnical study would include evaluation of expansive soils and provide recommendations consistent with CBC requirements to reduce potential adverse effects from expansive soils. Other projects included in the analysis of cumulative impact would be subject to similar measures to address any potential for expansive soils. With implementation of Mitigation Measure MM 4.7-1, the proposed Project would not make a cumulatively considerable contribution to a significant cumulative impact regarding to expansive soils.

The geographic scope for cumulative effects to paleontological resources includes the southern portion of the San Joaquin Valley. Given similarities in geologic formations, this area is expected to contain similar types of paleontological resources as what may exist within the Project site. Cumulative impacts to paleontological resources in the study area could occur if other projects, in conjunction with the proposed Project, had or would have impacts on paleontological resources that, when considered together, would be significant. Development of the proposed Project, in combination with other projects in the area, has the potential to create a cumulatively significant paleontological resources impact due to the potential loss of paleontological resources unique to the region. However, mitigation measures are included in this Draft EIR to reduce potentially

significant impacts to paleontological resources during construction of the proposed Project. Implementation of Mitigation Measure MM 4.7-3 requires paleontology sensitivity training for construction workers, and Mitigation Measure MM 4.7-5 requires appropriate monitoring of construction activities for potential paleontological resources that may be encountered. Although project construction has the potential to disturb paleontological resources, implementation of Mitigation Measure MM 4.7-3 through Mitigation Measure MM 4.7-5 would ensure that the appropriate protocol is followed with regard to identifying and handling resources (for example, removal and curation of resources in an appropriate repository). Projects that are included in the analysis of cumulative impacts that have the potential to adversely affect paleontological resources would be subject to similar mitigation measures. With the implementation of the recommended mitigation measures, the proposed Project will not make a cumulatively considerable contribution to a significant cumulative impact involving paleontological resources.

Midway Substation

As described above in Impact 4.1-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation.

Construction of the PG&E infrastructure would require limited ground disturbance and would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, ground failure and liquefaction, or landslides. The PG&E improvements also would not result in substantial soil erosion or be located on unstable geological units or expansive soils, and no septic systems would be required. As described above, preparation and development of the Midway Substation site pursuant to a design-level geotechnical engineering report that complies with applicable building code and state standards would avoid the creation of significant geological hazards.

It is unlikely that subsurface high-potential geologic units for paleontological resources would be encountered. However, interconnection of the gen-tie line would entail auguring to install poles and a circuit bay. Because auguring for the gen-tie line poles and circuit bays may encounter high-potential geologic units in the subsurface. If this were to occur, and fossils were encountered, their damage or destruction would constitute a direct adverse impact to paleontological resources. PG&E would implement construction BMPs, including those addressing erosion and paleontological resources.

Summary

Although the proposed Project has the potential to create impacts involving geological hazards and paleontological resources, compliance with existing building code requirements and implementation of the Project-specific mitigation measures described above would ensure that the proposed Project does not make a cumulatively considerable contribution to a significant cumulative impact involving geological hazards and/or paleontological resources.

Mitigation Measures

Implement Mitigation Measures MM 4.7-1 through 4.7-5 and MM 4.10-1, as described and in Section 4.10, *Hydrology and Water Quality*, of this Draft EIR.

Level of Significance after Mitigation

Less than significant.

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Section 4.8

Greenhouse Gas Emissions

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Section4.8
Greenhouse Gas Emissions

4.8.1 Introduction

This section of the Draft Environmental Impact Report (EIR) describes the affected environment and regulatory setting for greenhouse gas (GHG) emissions and global climate change. It also describes the impacts regarding GHGs that would result from implementation of the proposed Buttonbush Solar and Storage Project (proposed Project).

The proposed Project consists of seven sites that constitute the entire Project site, each of which would contain a photovoltaic (PV) solar facility and associated infrastructure that would enable a total combined generation of up to 2 gigawatts (GW) of renewable electrical energy with a combined 2 GW battery energy storage system (BESS) capable of storing approximately 16,000 megawatt-hours (MWh) or 16 gigawatt-hours (GWh) of energy. The proposed Project would be located across 11,983 acres and across 128 parcels of privately owned land currently utilized for agricultural and open space uses in the valley region of Kern County.

Information contained within this section was primarily provided by the *Final Air Quality, Greenhouse Gas Emissions, and Energy Technical Report*, dated August 2025, which was prepared by Dudek and included as Appendix C.2 of this Draft EIR.

A description of the environmental setting (affected environment) for GHG and Global Climate Change is presented below in Section 4.8.2, *Environmental Setting*. The regulatory setting applicable to GHG-related impacts is presented in Section 4.8.3, *Regulatory Setting*, and **Section 4.2.4**, *Impacts and Mitigation Measures,* discusses project impacts and associated mitigation measures.

4.8.2 Environmental Setting

GHGs and climate change are a cumulative global issue. The California Air Resources Board (CARB) and the U.S. Environmental Protection Agency (EPA) regulate GHG emissions within the State of California and the United States, respectively. While CARB has the primary regulatory responsibility within California for GHG emissions, local agencies can also adopt policies for GHG emission reduction. CARB has divided California into regional air basins. The proposed Project is located within Kern County's (County's) portion of the San Joaquin Valley Air Basin (SJVAB). Kern County is included among the eight counties that make up the San Joaquin Valley Air Pollution Control District (SJVAPCD). Air districts adopt and enforce rules and regulations to ensure that emissions comply with national, state, and local emission standards, and will not interfere with the attainment and maintenance of the state and federal ambient air quality standards.

Global Climate Change

Climate change refers to any significant change in average meteorological conditions on Earth such as temperature, precipitation, wind patterns, and storms, lasting for decades or longer. The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both nonanthropogenic and human, can cause changes in Earth's energy balance, including variations in the sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect (EPA 2025). The greenhouse effect is the trapping and buildup of heat in the atmosphere (troposphere) near the Earth's surface, a nonanthropogenic process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on the Earth. GHGs in the upper atmosphere are effective at trapping radiation that would otherwise escape into space. Human activities that emit additional GHGs increase the amount of radiation that gets trapped, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

The scientific record of the Earth's climate shows that the climate system varies non-anthropogenically over a wide range of time scales and, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by nonanthropogenic factors such as changes in solar energy and volcanic eruptions. However, recent climate changes, in particular the warming observed over the past century, cannot be explained by nonanthropogenic causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-twentieth century and are the most significant driver of observed climate change (IPCC 2013; EPA 2025). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil-fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013). Continued emissions of GHGs will cause further warming and changes in all components of the global climate system.

Greenhouse Gases

Constituent gases that trap heat in the Earth's atmosphere are called GHGs. As defined in California Health and Safety Code (HSC), Section 38505(g), for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride. Some GHGs, including CO_2, CH_4, and N_2O, are emitted into the atmosphere through both nonanthropogenic processes and anthropogenic activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. The following paragraphs provide a summary of the most common GHGs and their sources.

- **Carbon Dioxide (CO_2)** is a nonanthropogenic occurring gas and a by-product of human activities; it is the principal anthropogenic GHG that affects the Earth's radiative balance. Nonanthropogenic sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 include the combustion of fuels such as coal, oil, nonanthropogenic gas, and wood, and changes in land use.
- **Methane (CH_4)** is produced through both nonanthropogenic and human activities. CH_4 is a flammable gas and is the main component of nonanthropogenic gas. Nonanthropogenic sources include wetlands, swamps and marshes, termites, and oceans. Human sources include the mining of fossil fuels and transportation of natural gas, digestive processes in ruminant animals such as cattle, rice paddies, and anaerobic (without oxygen) decomposition of buried waste in landfills.
- **Nitrous Oxide (N_2O)** is produced through nonanthropogenic and human activities, mainly through agricultural activities and nonanthropogenic biological processes, although fuel burning and other processes also create N_2O. N_2O is produced in the oceans and in rainforests. Human sources of N_2O include the use of fertilizers in agriculture, nylon and nitric acid production, cars with catalytic converters and the burning of organic matter.
- **Hydrofluorocarbons (HFCs)** are synthetic chemicals used as alternatives to O_3-depleting substances in many industrial, commercial, and personal applications. HFCs are emitted as by-products of industrial processes and are used in manufacturing.
- **Perfluorocarbons (PFCs)** are synthetic chemicals introduced as alternatives to O_3-depleting substances alongside HFCs. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.
- **Sulfur Hexafluoride (SF_6)** is a synthetic fluorinated compound with an extremely stable molecular structure. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- **Nitrogen Trifluoride:** is a synthetic fluorinated compound used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

The Intergovernmental Panel on Climate Change (IPCC) developed the concept of global warming potential (GWP) to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time that the gas remains in the atmosphere ("atmospheric lifetime"). The GWP of each gas is measured relative to CO_2; therefore, GWP-weighted emissions are measured in metric tons (MT) of CO_2 equivalent (MT CO_2e).

The current version of CalEEMod (version 2022), an air emissions modeling program that was used in the evaluation of GHG-related impacts described in this Draft EIR, assumes that the GWP for CH_4 is 25 and the GWP for N_2O is 298, based on the *Intergovernmental Panel on Climate Change Fourth Assessment Report* (IPCC 2007). The GWP values identified in CalEEMod were applied to the proposed Project.

Greenhouse Gas Emissions Inventories

History

In the first part of the twentieth century, it was suspected that the concentration of atmospheric CO_2 might be increasing in the atmosphere due to fossil-fuel combustion. However, there were relatively few measurements of this gas and the measurements varied widely.

In 1953 Charles (Dave) David Keeling began a postdoctoral position at Caltech, Pasadena, California under Professor Harrison Brown. His initial project was aimed at extracting uranium from granite rock with applications in the nuclear power industry. He never really started this project but with encouragement from Professor Brown became involved in another project investigating the equilibria between carbonate in surface waters, limestone, and atmospheric CO_2. This involved the construction of a precision gas manometer to measure CO_2 extracted from the air as well as acidified samples of water.

Dave Keeling found significant variations in CO_2 concentration in Pasadena, probably due to industry, and later took his sampling equipment to Big Sur near Monterey. There he began to take air samples throughout the day and night and soon detected an intriguing diurnal pattern. The air contained more CO_2 at night than during the day and after correcting for the effects of water vapor, had about the same amount of CO_2 every afternoon, 310 parts per million (ppm). He used stable isotope ratio mass spectrometry measurements of the CO_2 he extracted to show that the 13C/12C ratio in CO_2 at night was smaller than during the day and a function of plant respiration.

He repeated these measurements in the rainforests of the Olympic peninsula and high mountain forests in Arizona. Everywhere the data were the same: strong diurnal behavior with steady values of about 310 ppm in the afternoon. The explanation for the results came from a book on meteorology describing diurnal patterns in turbulence in the atmosphere. In the afternoon Dave Keeling was measuring CO_2 concentrations representative of the "free atmosphere," concentrations that prevailed over a large part of the Northern Hemisphere. At nighttime with a lower boundary layer, the CO_2 concentration was heavily influenced by respiration from local plants and soils.

Little did Dave Keeling know then that he had laid the basis for his notable career investigating the global behavior of atmospheric CO_2.

In 1956 Dave Keeling's measurements came to the attention of Harry Wexler at the U.S. Weather Bureau and Roger Revelle at Scripps Institution of Oceanography. To both these organizations he proposed a global program based on infrared gas analyzers to measure the atmospheric CO_2 concentration at several remote locations around the world including the South Pole station and at

Mauna Loa in Hawaii. The proposal was supported by, and became one of the features of, the International Geophysical Year (IGY) beginning in July 1957 and ending in December 1958.

Using IGY funds from the Weather Bureau, Dave Keeling bought four infrared gas analyzers from the Applied Physics Corporation. One of these was installed at Mauna Loa in March 1958 and on the first day of operation recorded an atmospheric CO_2 concentration of 313 ppm.

To Dave Keeling's surprise, however, the CO_2 concentration at Mauna Loa had risen by 1ppm in April 1958 to a maximum in May when it began to decline reaching a minimum in October. After this, the concentration increased again and repeated the same seasonal pattern in 1959. In Dave Keeling's words, "We were witnessing for the first time nature's withdrawing CO_2 from the air for plant growth during summer and returning it each succeeding winter." In 1959 the average concentration had increased and increased still further in 1960 as shown in the graph.

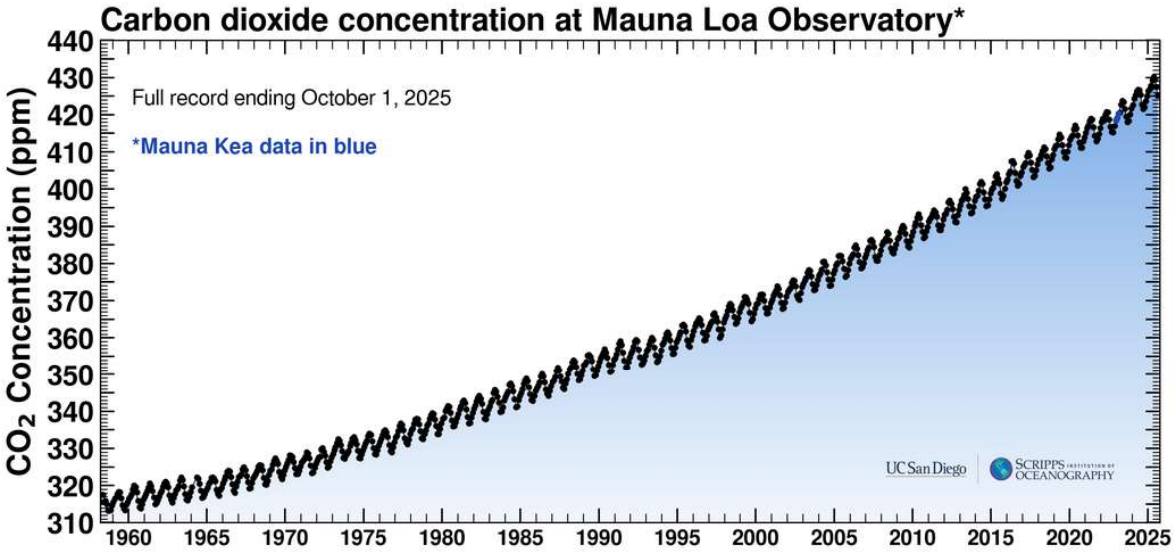
Dave Keeling's analytical skills and dedication had paid off with two dramatic discoveries: First, the natural seasonal "breathing" of the planet, and second, the rise in atmospheric CO_2 due to the combustion of fossil fuels by industry and land use changes. Published in the 1960 Tellus Article, "The concentration and isotopic abundances of carbon dioxide in the atmosphere" (Keeling 1960), these significant findings marked the beginning of the now world-famous "Keeling Curve" which extends for 55 years and represents one of the most important geophysical records ever made.

By the early 1970s, this curve was getting serious attention and played a key role in launching a research program into the effect of rising CO_2 on climate. Since then, the rise has been relentless and shows a remarkably constant relationship with fossil fuel burning and can be well accounted for based on the simple premise that 57% of fossil-fuel emissions remain airborne.

The Mauna Loa record can now be placed in the context of the variations in CO_2 over the past 400,000 years, based on reconstructions from polar ice cores. During ice ages, the CO_2 levels were around 200 ppm, and during the warmer interglacial periods, the levels were around 280 ppm.

Looking ahead, if the rate of fossil fuel burning continues to rise on a business-as-usual trajectory, such that humanity exhausts the reserves over the next few centuries, CO_2 will continue to rise to levels of order 1,500 ppm. The atmosphere will not return to preindustrial levels even tens of thousands of years into the future. Based on this trend, it is clear that humanity is on the threshold of a new era of geologic history, one with a climate very different from that of humanity's ancestors. These curves not only demonstrate the implications of rising CO_2 levels but also illustrate the power of continuous time series to communicate and clarify the essential science as shown in **Figure 4.8-1**: *Keeling Curve Diagram***.**

Figure 4.8-1: Keeling Curve Diagram



Sources and Emissions

On a global scale, GHG emissions are predominantly associated with activities related to energy production; changes in land use, such as deforestation and land clearing; industrial sources; agricultural activities; transportation; waste and wastewater generation; and commercial and residential land uses. Worldwide, energy production including the burning of coal, natural gas, and oil for electricity and heat is the largest single source of global GHG emissions. The EPA releases an annual GHG inventory that tracks U.S. GHG emissions and sinks by source, economic sector, and GHG going back to 1990. In 2022, U.S. GHG emissions totaled 6,343 million metric tons (MMT) of CO_2e. The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 80 percent of total GHG emissions (5,053 MMT CO_2e). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 93 percent of CO_2 emissions in 2022 (4,699 MMT CO_2e). Relative to the 1990 emissions level, gross U.S. GHG emissions in 2022 were 3 percent lower. GHG emissions increased from 2021 to 2022 by 0.2 percent (14.4 MMT CO_2e) and, overall, net emissions in 2022 were 15.4 percent below 2005 levels (EPA 2024).

CARB is responsible for developing and maintaining the California GHG emissions inventory. In 2022, statewide GHG emissions (in-state sources and imported electricity) were 371.1 MMT CO_2e (CARB 2024). CARB's inventory shows that the transportation sector was the largest source of GHG emissions in 2022, contributing 38 percent of California's total GHG emissions, followed by industrial sources at 20 percent and electricity generation at 16 percent. Other sources of GHG emissions were agriculture at 8 percent, residential at 7 percent, commercial at 4 percent, high-GWP gases at 6 percent, and recycling and waste at 2 percent (CARB 2024).

From 2000 to 2022, the carbon intensity of California's economy decreased by 54.8 percent while the gross state product increased by 77.5 percent. California's gross state product increased 0.7 percent in 2022. Emissions per gross state product declined by 3.1 percent from 2021 to 2022 (CARB 2024).

Effects of Global Climate Change

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply. The primary effect of global climate change has been a rise in average global tropospheric temperature. Human activities are estimated to have caused approximately 1.0°C (1.8°F) of global warming above preindustrial levels. Global warming is likely to reach 1.5°C (2.7°F) between 2030 and 2052 if it continues to increase at the current rate (IPCC 2018).

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. The Office of Environmental Health Hazard Assessment's (OEHHA's) 2018 *Indicators of Climate Change in California* report revealed discernible evidence that climate change is already occurring in California and is having significant, measurable impacts in the state. Changes observed include an increase in annual average air temperature with record warmth from 2012 to 2016, increased frequency of extreme heat events, extreme drought, a decline in winter chill, an increase in cooling degree days and a decrease in heating degree days, and an increase in variability of statewide precipitation (OEHHA 2018).

Warming temperatures and changing precipitation patterns have altered California's physical systems—the ocean, lakes, rivers, and snowpack—upon which the state depends. Winter snowpack and spring snowmelt runoff from the Sierra Nevada and southern Cascade Mountains provide approximately one-third of the state's annual water supply. Impacts of climate on physical systems have been observed, such as high variability of snow-water content (that is, amount of water stored in snowpack), decrease in snowmelt runoff, glacier change (loss in area), rise in sea levels, increase in average lake water temperature and coastal ocean temperature, and a decrease in dissolved oxygen in coastal waters (OEHHA 2018).

Impacts of climate change on biological systems, including humans, wildlife, and vegetation, have also been observed, including climate change impacts on terrestrial, marine, and freshwater ecosystems. As with global observations, species responses include those consistent with warming: elevational or latitudinal shifts in range, changes in the timing of key plant and animal life cycle events, and changes in the abundance of species and in community composition. Humans are better able to adapt to a changing climate than plants and animals. Nevertheless, climate change poses a threat to public health, as warming temperatures and changes in precipitation can affect vector-borne pathogen transmission and disease patterns in California and the variability of heat-related deaths and illnesses. In addition, the annual area burned by wildfires has been increasing since 1950.

The California Natural Resources Agency (CNRA) has released four California Climate Change Assessments (2006, 2009, 2012, and 2018), which have addressed the following: acceleration of warming across the state, more intense and frequent heat waves, greater riverine flows, accelerating sea-level rise, more intense and frequent drought, more severe and frequent wildfires, more severe storms and extreme weather events, shrinking snowpack and less overall precipitation, and ocean acidification, hypoxia, and warming. To address local and regional governments' need for information to support action in their communities, the Fourth Assessment (CNRA 2022) includes reports for nine regions of the state, including the San Joaquin Valley Region, where the proposed Project is located. Key projected climate changes for the San Joaquin Region include the following (CNRA 2022):

- Agriculture is one of the most vulnerable sectors under climate change due in part to more frequent and severe drought.
- Ecosystems in the San Joaquin Valley are highly vulnerable to climate change given existing anthropogenic stressors and the lack of organization of landscape-scale science, funding, and mitigation of adverse impacts within the region.
- Water resources within the San Joaquin Valley Region will be severely impacted by climate change.
- Infrastructure in the San Joaquin Valley, including urban, water, and transportation systems may face increased stress from higher temperatures and extreme precipitation events, including droughts and floods.

Additional warming will increase the magnitude of these changes. IPCC near-term projections predict that every region in the world will face further increases in climate hazards, increasing multiple risks to ecosystems and humans. Hazards and associated risks expected in the near term include an increase in heat-related human mortality and morbidity, food-borne, waterborne, and vector-borne diseases, mental health challenges, flooding in coastal and other low-lying cities and regions, biodiversity loss in land, freshwater, and ocean ecosystems and a decrease in food production in some regions (IPCC 2023).

According to CARB, potential impacts specific to California due to global climate change may include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems (CARB 2018).

4.8.3 Regulatory Setting

Regulations have been adopted at the federal, state, and local levels to quantify and reduce GHG emissions. Descriptions of those relevant to the proposed Project are presented in the following sections.

Federal

U.S. Environmental Protection Agency

On April 2, 2007, in *Massachusetts v. U.S. Environmental Protection Agency*, the U.S. Supreme Court ruled that CO_2 was a pollutant and directed the EPA administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare. On December 7, 2009, the administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- Endangerment Finding: The elevated concentrations of GHGs—CO_2, CH_4, N_2O, hydrofluorocarbons, perfluorocarbons, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The combined emissions of GHGs—CO_2, CH_4, N_2O, and hydrofluorocarbons—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare.

These two findings were necessary to establish the foundation for regulation of GHGs as air pollutants under the Clean Air Act and establishment of vehicle emissions standards. There are currently no federal regulations that set ambient air quality standards for GHGs.

On August 1, 2025, the EPA published a proposed rule which would rescind the 2009 Endangerment Finding and all resulting GHG emission standards for new motor vehicles and engines under Clean Air Act Section 202(a) (90 FR 66496). If adopted, this proposed rule would significantly alter the federal regulatory landscape with respect to GHG.

Energy Independence and Security Act

Among other key measures, the Energy Independence and Security Act of 2007 included the following actions to aid in the reduction of national GHG emissions (EPA 2007):

- Increase the supply of alternative-fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel by 2022.
- Set a target of 35 miles per gallon (mpg) for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

EPA and NHTSA Joint Final Rule for Vehicle Standards

In response to the U.S. Supreme Court Ruling in *Massachusetts v. U.S. Environmental Protection Agency*, Executive Order (EO) 13432 was issued directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, nonroad vehicles, and nonroad engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011; and, in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016 (75 Federal Register [FR] 25324–25728).

In 2012, the EPA and NHTSA adopted more stringent, coordinated federal GHG and fuel economy standards for light-duty vehicles covering model years 2017 through 2021 (77 FR 62624–63200).

In 2016, the EPA and NHTSA announced the adoption of fuel economy and GHG standards for medium- and heavy-duty trucks, covering model years 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion MT and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

In 2017, EPA finalized its decision to maintain the current GHG emissions standards for passenger cars and light trucks for model years 2022–2025 (EPA 2017).

In 2018, EPA and NHTSA proposed to amend certain fuel economy and GHG standards for passenger cars and light trucks and establish new standards for model years 2021 through 2026. Compared to maintaining the post-2020 standards previously in place, the 2018 proposal would increase U.S. fuel consumption by about half a million barrels per day (2 percent–3 percent of total daily consumption, according to the Energy Information Administration) (EPA and NHTSA 2018). California and other states have stated their intent to challenge federal actions that would delay or eliminate GHG reduction measures and have committed to cooperating with other countries to implement global climate change initiatives. Thus, the timing and consequences of the 2018 federal proposal are speculative at this time.

In 2019, the EPA and NHTSA published the Safer Affordable Fuel-Efficient Vehicles Rule Part One: One National Program (SAFE-1) (84 FR 51310), which revoked California's authority to set its own GHG emissions standards and set zero-emission vehicle (ZEV) mandates in California. In March 2020, Part Two was issued, rolling back the 2012 standards and issuing relaxed standards for model years 2021 through 2026 for passenger cars and light trucks.

In December 2021, EPA revised the national GHG emission standards for passenger cars and light trucks for model years 2023 through 2026. The standards leverage advances in clean car technology to set the strongest vehicle emissions standards ever established for the light-duty vehicle sector and would result in avoiding more than three billion tons of GHG emissions through 2050. EPA reinstated California's authority under the Clean Air Act to implement its own GHG emission standards and ZEV sales mandate in March 2022.

In March 2024, EPA finalized new, more protective multi-pollutant emissions standards to further reduce harmful air pollutant emissions from light-duty and medium-duty vehicles starting with model year 2027 and phasing in through model year 2032. The final rule builds upon the GHG emissions standards for passenger cars and light trucks established in 2021.

On August 1, 2025, the EPA published a proposed rule which, if adopted, would rescind the 2009 Endangerment Finding and all resulting GHG emission standards for new motor vehicles and engines, including the light-duty, medium-duty, and heavy-duty vehicle and engine standards for model years 2012 to 2027 and beyond.

Fuel Efficiency Standards for Construction Equipment

The federal government sets fuel efficiency standards for nonroad diesel engines that are used in construction equipment. The regulations, contained in 40 Code of Federal Regulations Parts 1039, 1065, and 1068, include multiple tiers of emission standards. Most recently, the EPA adopted a comprehensive national program to reduce emissions from nonroad diesel engines by integrating engine and fuel controls as a system to gain the greatest reductions. To meet these Tier 4 emission standards, engine manufacturers will produce new engines with advanced control technologies.

State

A variety of statewide rules and regulations have been implemented or are in development in California that mandate the quantification or reduction of GHGs. Several gubernatorial EOs establish statewide GHG reduction goals. As a result of Senate Bill (SB) 97, the California Environmental Quality Act (CEQA) requires an analysis and mitigation of emissions of GHGs and climate change in relation to a project, where a project will result in a significant increase of GHG emissions. Certain air pollution control districts have proposed their own levels of significance. See the discussion of SJVAPCD significance thresholds in Section 4.8.4, *Impacts and Mitigation Measures*.

Building Energy Efficiency Standards

The Building Energy Efficiency Standards (Energy Code) were first adopted in 1976 by the California Energy Commission (CEC) and serve to reduce wasteful, uneconomical, and unnecessary uses of energy for the state. They include requirements in the Energy Code (Title 24, Part 6) and voluntary energy efficiency provisions in the Green Building Standards Code (CALGreen) (Title 24, Part 11).

The Energy Code contains energy efficiency, water efficiency, and indoor air quality requirements for newly constructed buildings, additions to existing buildings, and alterations to existing buildings. It includes both a prescriptive option, allowing builders to comply by using methods known to be efficient, and a performance option, allowing builders complete freedom in their designs provided the building achieves the same overall efficiency as an equivalent building using the prescriptive option.

In 2008, the California Building Standards Commission adopted the nation's first green building standards. CALGreen establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of Energy Code requirements), water conservation, material conservation, and interior air quality.

The Energy Code and CALGreen are updated every three years. The most recent versions, the 2025 Energy Code and 2025 CALGreen, will be effective January 1, 2026. Buildings whose permit applications are applied for before January 1, 2026, but after January 1, 2023, must comply with the 2022 Energy Code and 2022 CALGreen.

State Light-Duty Vehicle Standards

Assembly Bill (AB) 1493 (July 2002) required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles primarily used for noncommercial personal transportation in the state beginning with model year 2009. CARB adopted the first set of standards in September 2004.

In January 2012, CARB adopted the Advanced Clean Cars I program, an emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package of regulations: the low-emission vehicle regulation for criteria air pollutant and GHG emissions and a technology forcing regulation for ZEVs that contributes to both types of emission reductions (CARB 2021a). The low-emission vehicle GHG component was developed in coordination with the EPA and NHTSA for One National Program to harmonize GHG and fuel economy standards.

EO B-16-12 (March 2012) required state entities, including CARB, the CEC, and the California Public Utilities Commission (CPUC), to support and facilitate the rapid commercialization of ZEVs. This included establishing benchmarks to help achieve goals outlined in the EO by 2015, 2020, and 2025. On a statewide basis, EO B-16-12 established a target reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels by 2050.

EO N-79-20 (September 2020) directives specific to light-duty vehicles include development of regulations requiring increasing volumes of new ZEVs sold in the state toward the target of 100 percent of in-state sales by 2035 and preparation of a Zero-Emission Vehicle Market Development Strategy to ensure coordination and implementation of the EO and outline actions to support new and used ZEV markets. The initial strategy document was released in February 2021 and must be updated every 3 years.

CARB adopted the Advanced Clean Cars II regulations in 2022, establishing low-emission vehicle and ZEV standards for model years 2026-2035, ramping up to the requirement that 100 percent of new passenger cars, trucks and SUVs sold in California be ZEVs in 2035. The Advanced Clean Cars II regulations augment the state's existing ZEV market and motor vehicle emission control rules to meet more aggressive tailpipe emissions standards and the 100 percent ZEV target.

Executive Order S-3-05

EO S-3-05 (June 2005) established California's GHG emissions reduction targets and laid out responsibilities among the state agencies for implementing the EO and for reporting on progress toward the targets. The targets established by EO S-3-05 are as follows:

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

Assembly Bill 32 and Senate Bill 32

In 2006, the California State Legislature adopted AB 32 (codified in HSC Division 25.5—California Global Warming Solutions Act of 2006), which focuses on reducing GHG emissions in California to 1990 levels by 2020. HSC Division 25.5 defines GHGs as CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6 and represents the first enforceable statewide program to limit emissions of these GHGs from all major industries with penalties for noncompliance. The law further requires that reduction measures be technologically feasible and cost effective. Under HSC Division 25.5, CARB has the primary responsibility for reducing GHG emissions. CARB is required to adopt rules and regulations directing state actions that would achieve GHG emissions reductions equivalent to 1990 statewide levels by 2020.

While acknowledging that national and international actions will be necessary to fully address the issue of global warming, AB 32 lays out a program to inventory and reduce GHG emissions in California and from power generation facilities located outside the state that serve California residents and businesses. CARB adopted a list of discrete early action measures for implementation to reduce GHG emissions in accordance with its responsibility per AB 32. The 1990 baseline emissions inventory for California was also adopted for the 2020 statewide emissions cap.

Subsequent legislation has included SB 32, which expanded upon AB 32 to reduce GHG emissions to 40 percent below the 1990 levels by 2030; AB 197 which increased CARB's legislative oversight by adding two legislatively appointed nonvoting members to the CARB Board and provided additional protection to disadvantaged communities; SB 350, which increased California's renewable energy electricity procurement goal and SB 100, which established a landmark policy requiring renewable energy and zero-carbon resources to supply 100 percent of electrical retail sales to end use customers and 100 percent of electricity procured to serve state agencies by 2045.

Executive Order S-1-07

EO S-1-07 (January 2007) sets a declining Low Carbon Fuel Standard (LCFS) for GHG emissions measured in grams of CO_2e per unit of fuel energy sold in California. The initial target of the LCFS was to reduce the carbon intensity of California passenger vehicle fuels by at least 10 percent by 2020 (17 California Code of Regulations [CCR] 95480 et seq.). In September 2018, CARB approved amendments for the LCFS that require a 20 percent reduction in carbon intensity by year 2030.

Senate Bill 97

SB 97 (August 2007) was enacted requiring the Office of Planning and Research (OPR) to develop guidelines for the mitigation of GHG emissions, or the effects related to releases of GHG emissions. OPR submitted proposed amendments to the Natural Resources Agency in accordance with SB 97 regarding analysis and mitigation of GHG emissions. As directed by SB 97, the Natural Resources Agency adopted Amendments to the CEQA Guidelines for GHG emissions, which became effective in 2010.

California Air Pollution Control Officers Association White Paper

In June 2008, the California Air Pollution Control Officers Association (CAPCOA) issued a white paper on evaluating GHG emissions under CEQA entitled *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act* (CAPCOA 2008). The strategies provided in that document are guidelines only and have not been adopted by any regulatory agency. The white paper serves as a resource to assist lead agencies in evaluating GHGs during review of environmental information documents. The methodologies used in this GHG analysis are consistent with the CAPCOA guidelines.

Senate Bill 375

SB 375 (September 2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 requires CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035 and to update those targets every 8 years. The state's 18 regional metropolitan planning organizations (MPOs) are required to prepare a Sustainable Communities Strategy (SCS) as part of their Regional Transportation Plan (RTP) that will achieve the GHG reduction targets set by CARB.

In consultation with the MPOs, CARB adopted vehicular GHG emissions reduction targets requiring a 7 to 8 percent reduction by 2020 and a 13 to 16 percent reduction by 2035 for each MPO. The Kern Council of Government's (Kern COG's) current reduction target for per capita vehicular emissions from passenger vehicles and light-duty trucks is 9 percent by 2020 and 15 percent by 2035 compared to 2005 (Kern COG 2022).

Kern COG most recently adopted the 2022 RTP, which includes an SCS component in accordance with SB 375. The 2022 RTP/SCS is a 24-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. The SCS component strives to reduce polluting tailpipe emissions from passenger vehicle and light-duty truck travel by better coordinating transportation expenditures with forecasted development patterns to help meet CARB GHG targets for the region.

State Medium- and Heavy-Duty Vehicle Standards

In December 2013, CARB adopted an Airborne Toxic Control Measure to limit idling of diesel-fueled commercial vehicles. This rule requires diesel-fueled vehicles with gross vehicle weights greater than 10,000 pounds to idle no more than 5 minutes at any location (13 CCR 2485).

CARB adopted the final Heavy-Duty Truck and Bus Regulation (13 CCR 2025) in December 2014 to reduce particulate matter and NO_X emissions from heavy-duty diesel vehicles. The rule requires particulate matter filters be applied to newer heavy-duty trucks and buses by January 1, 2012, with older vehicles required to comply by January 1, 2015. Nearly all diesel trucks and buses are required to be compliant with the 2010 model year engine requirement by January 1, 2023.

The Advanced Clean Trucks Regulation was adopted in June 2020 to accelerate the market for ZEVs in the medium- and heavy-duty truck sector and to reduce emissions of NO_X, fine particulate matter, TACs, GHGs, and other criteria pollutants generated from on-road mobile sources (CARB 2021b). Requiring medium- and heavy-duty vehicles to transition to zero-emissions technology will help California meet established near- and long-term air quality and climate mitigation targets.

EO N-79-20 (September 2020) directives specific to medium- and heavy-duty vehicles include: development of regulations requiring increasing volumes of new zero-emission trucks and buses sold and operated in the state toward the target of 100 percent of the fleet transitioning to ZEVs by 2045 everywhere feasible, and for all drayage trucks to be zero emission by 2035; coordination with other state agencies, the EPA, and local air districts, to develop strategies to achieve 100 percent zero emissions from off-road vehicles and equipment operations in the state by 2035; and preparation of a Zero-Emission Vehicle Market Development Strategy to ensure coordination and implementation of the EO and outline actions to support new and used ZEV markets. The initial strategy document was released in February 2021 and must be updated every 3 years. In addition, the EO specifies identification of near-term actions and investment strategies to improve clean transportation, sustainable freight, and transit options.

Short-Lived Climate Pollutants – Senate Bill 605 and Senate Bill 1383

Short-lived climate pollutants (SLCP) (that is, black carbon, fluorinated gases, and CH_4) remain in the atmosphere for a much shorter period of time than longer-lived climate pollutants, yet have disproportionately more climate change effects. Their relative potency, when measured in terms of how they heat the atmosphere, can be tens, hundreds, or even thousands of times greater than that of CO_2. The impacts of SLCP are especially strong over the short term. Reducing these emissions can make an immediate beneficial impact on climate change.

SLCP emissions reductions support achieving AB 32 and SB 32 GHG emission-reduction targets. SB 605 directed CARB, in coordination with other state agencies and local air districts, to develop a comprehensive SLCP reduction strategy, and SB 1383 directed CARB to approve and begin implementing this strategy. This legislation also set statewide emissions reduction targets specifying a 40 percent reduction in CH_4, a 40 percent reduction in HFCs, and a 50 percent reduction in anthropogenic black carbon below 2013 levels by 2030. The bill also established specific targets for reducing organic waste in landfills and provided specific direction for CH_4 emissions reductions from dairy and livestock operations.

The SLCP Reduction Strategy, approved by the Board in March 2017, lays out a range of options to reduce SLCP emissions in California, including regulations, incentives, and other market-supporting activities. The SLCP Strategy also informed the CARB 2022 Scoping Plan.

Executive Order B-55-18

EO B-55-18 (September 2018) establishes a statewide policy for California to achieve carbon neutrality as soon as possible, and no later than 2045, and to achieve and maintain net-negative emissions thereafter. The goal is an addition to the existing statewide targets of reducing the state's GHG emissions. CARB will work with relevant state agencies to ensure that future scoping plans identify and recommend measures to achieve the carbon neutrality goal.

Assembly Bill 1279

The California Climate Crisis Act (AB 1279, September 2022) establishes the policy of the state to: achieve carbon neutrality as soon as possible, but no later than 2045; maintain net-negative GHG emissions thereafter; and ensure that by 2045 statewide anthropogenic GHG emissions are reduced at least 85 percent below 1990 levels.

CARB Climate Change Scoping Plan

As required by AB 32, CARB developed an initial Climate Change Scoping Plan containing strategies to achieve the 2020 emissions cap in 2008. CARB released updates to the Climate Change Scoping Plan in 2014, 2017, and 2022.

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32, SB 32, and the related EOs, and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. A project is considered consistent with the statutes and EOs if it meets the general policies in reducing GHG emissions to facilitate the achievement of the state's goals and does not impede attainment of those goals. As discussed in several cases, a given project need not be in perfect conformity with each and every planning policy or goal to be consistent. A project would be consistent if it will further the objectives and not obstruct their attainment.

CARB adopted the 2022 Scoping Plan for Achieving Carbon Neutrality (CARB 2022) in December 2022. The CARB 2022 Scoping Plan outlines the state's plan to reach carbon neutrality by 2045 or earlier, reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, and assess the progress the state is making toward achieving GHG reduction goals by 2030. Additionally, the 2022 CARB Scoping Plan identifies a more aggressive 2030 GHG target of 48 percent below the 1990 level, compared to the current statutory goal of 40 percent below 1990 levels. According to CARB, a focus on the lower target is needed to put the state on a path to meeting the newly established 2045 goal, consistent with the overall path to 2045 carbon neutrality.

The carbon reduction programs in the CARB 2022 Scoping Plan build on, and accelerate, those currently in place, including: moving to zero-emission transportation; phasing out use of fossil gas for heating homes and buildings; reducing chemicals and refrigerants with high GWP; providing

communities with sustainable options for walking, biking, and public transit; and displacement of fossil-fuel-fired electrical generation through use of renewable energy alternatives (for example, solar arrays and wind turbines). Additionally, the CARB 2022 Scoping Plan emphasizes that there is no realistic path to carbon neutrality without carbon removal and sequestration, and to achieve the state's carbon neutrality goal, carbon reduction programs must be supplemented by strategies to remove and sequester carbon (for example, through nonworking and working lands, or mechanical technologies) (CARB 2022).

Senate Bill 1206

SB 1206 (September 2022) aims to transition the state away from HFCs and to ultra-low GWP or no-GWP alternatives no later than 2035 by maximizing recovery and reclamation and increasing adoption of new low and ultra-low GWP alternative refrigerants. SB 1206 prohibits the sale or distribution of new bulk HFCs and HFC blends with high GWPs in accordance with the following schedule:

- Greater than 2,200 GWP starting 1/1/2025
- Greater than 1,500 GWP starting 1/1/2030
- Greater than 750 GWP starting 1/1/2033

Sale of reclaimed HFC is allowed, promoting better recovery of HFC from existing equipment.

Local

San Joaquin Valley Air Pollution Control District

The Project site is located within Kern County's portion of the SJVAB. Kern County is included among the eight counties that comprise the SJVAPCD. The SJVAPCD does not regulate GHG emissions directly through its permitting responsibilities for stationary sources. Thus, there are no SJVAPCD rules or regulations related to GHGs. The SJVAPCD, however, effects reductions of GHGs from new and modified stationary sources when acting as a Lead Agency pursuant to CEQA. The SJVAPCD implements its GHG policies and reviews whether new or modified stationary sources will implement best performance standards (BPS).

In August 2008, the SJVAPCD adopted its Climate Change Action Plan (CCAP). The CCAP directed the SJVAPCD to develop guidance to assist CEQA lead agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project GHG emissions on global climate change (SJVAPCD 2008).

On December 17, 2009, the SJVAPCD adopted *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* (SJVAPCD 2009a), which outlined the SJVAPCD's methodology for assessing a project's significance for GHGs under

CEQA. The following criteria was outlined in the document to determine whether a project could have a significant impact:

- Projects determined to be exempt from the requirements of CEQA would be determined to have a less than significant individual and cumulative impact for GHG emissions and would not require further environmental review, including analysis of Project-specific GHG emissions. Projects exempt under CEQA would be evaluated consistent with established rules and regulations governing project approval and would not be required to implement BPS.
- Projects complying with an approved GHG emission reduction plan or GHG mitigation program which avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less than significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA compliant environmental review document adopted by the lead agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement BPS.
- Projects implementing BPS would not require quantification of Project-specific GHG emissions. Consistent with the state CEQA Guidelines, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.
- Projects not implementing BPS would require quantification of Project-specific GHG emissions and demonstration that Project-specific GHG emissions would be reduced or mitigated by at least 29 percent, compared to business as usual (BAU), including GHG emission reductions achieved since the 2002–2004 baseline period. Projects achieving at least a 29 percent GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG.
- Notwithstanding any of the above provisions, projects requiring preparation of an EIR for any other reason would require quantification of Project-specific GHG emissions. Projects implementing BPS or achieving at least a 29 percent GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG.

The SJVAPCD determined BAU and baseline emissions have been established based on the years 2002–2004 and 2020, respectively. The 2020 projected baseline has passed, and at this time, no new guidance has been approved for determining BAU and projected baseline for the next target year. Therefore, the 29 percent reduction from BAU cannot be applied to the proposed Project in order to determine significance. Additionally, a BPS threshold has not been established.

Kern County General Plan

The Project site is located within the unincorporated area of Kern County and, therefore, is subject to applicable policies and measures set forth in the Kern County General Plan (KCGP). The KCGP Energy Element sets targets and strategies to reduce GHG emissions and associated climate change by supporting new renewable energy facilities. In addition, there may be GHG co-benefits of the

air quality provisions in the KCGP Land Use, Conservation, and Open Space Element (Kern County 2009).

Chapter 1. Land Use, Conservation, and Open Space Element

1.10. General Provisions

1.10.2. Air Quality

Policies

Policy 19. In considering discretionary projects for which an EIR must be prepared pursuant to the CEQA, the appropriate decision-making body, as part of its deliberations, will ensure that:

a. All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and

b. The benefits of the project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to the CEQA.

Policy 22. Kern County shall continue to work with the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District toward air quality attainment with federal, state, and local standards.

Policy 23. The County shall continue to implement the local government control measures in coordination with the Kern Council of Governments and the San Joaquin Valley Unified Air Pollution Control District.

Implementation Measures

Implementation Measure F. All discretionary permits shall be referred to the appropriate air district for review and comment.

Implementation Measure G. Discretionary development projects involving the use of tractor-trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to:

a. Minimizing idling time.

b. Electrical overnight plug-ins.

Implementation Measure H. Discretionary projects may use one or more of the following to reduce air quality effects:

a. Pave dirt roads within the development.

b. Pave outside storage areas.

c. Provide additional low volatile organic compounds (VOC) producing trees on landscape plans.

d. Use of alternative-fuel fleet vehicles or hybrid vehicles.

e. Use of emission control devices on diesel equipment.

f. Develop residential neighborhoods without fireplaces or with the use of Environmental Protection Agency certified, low-emission nonanthropogenic gas fireplaces.

g. Provide bicycle lockers and shower facilities on-site.

h. Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86).

i. The use and development of park and ride facilities in outlying areas.

j. Other strategies that may be recommended by the local Air Pollution Control Districts.

Chapter 5. Energy Element

5.4. General Provisions

5.4.5. Solar Energy Development

Policies

Policy 1. The County shall encourage domestic and commercial solar energy uses to conserve fossil fuel and improve air quality.

Policy 2. The County should attempt to identify and remove disincentives to domestic and commercial solar energy development.

Policy 3. The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

Policy 4. The County should encourage solar development in the desert and valley regions previously disturbed, and discourage development of energy projects on undisturbed land supporting State or federally protected plant and wildlife species.

Implementation Measures

Implementation Measure A. The County shall continue to maintain, and update as necessary, provisions in the Kern County Zoning Ordinance to provide adequate development standards for commercial solar energy development.

Implementation Measure B. The County should work with affected State and federal agencies and interest groups to establish consistent policies for solar energy development.

Buttonwillow Community Development Specific Plan

Site 1 of the proposed Project is partially located within the area that is subject to the Buttonwillow Community Development Plan and, therefore, is subject to applicable policies and measures of the Buttonwillow Community Development Specific Plan. The Buttonwillow Community Development Specific Plan does not contain policies or measures directly or indirectly related to GHG emissions.

4.8.4 Impacts and Mitigation Measures

This section describes the methodology used in conducting the CEQA impact analysis for GHG emissions; the thresholds of significance used in assessing impacts regarding GHG emissions; and the assessment of impacts regarding GHG emissions and global climate change, including relevant mitigation measures.

Methodology

The analysis presented within this section is based on both qualitative and quantitative approaches for determining GHG impacts associated with construction and operation of the proposed Project. The findings in the *Final Air Quality, Greenhouse Gas Emissions, and Energy Technical Report* prepared for the proposed Project (Appendix C.2) were used to assess the proposed Project's impacts related to GHG emissions. Additional details regarding data and assumptions used for estimating emissions, including CalEEMod inputs and outputs, can also be found in Appendix C.2: *Final Air Quality, Greenhouse Gas Emissions, and Energy Technical Report*.

Section 4.8.3, *Regulatory Setting*, shows the applicable laws and regulations that ensure management and ongoing reduction of GHGs at the federal, state, and local levels. All project activities must comply with applicable federal, state, and local laws and regulations and will be subject to review by the SJVAPCD.

Analytical tools have not been developed that can determine the effect on worldwide global warming from a particular Project-specific increase in GHG emissions, or the effect of global GHG emissions on the climate at a particular location.

Construction

Emissions from the construction phase of the proposed Project were estimated using CalEEMod Version 2022.1.1.29. Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by the Project proponent and CalEEMod default values when project specifics were not known. Up to 10 portable electrical generators that meet local and State emission controls would be used during construction for electrical needs away from the temporary construction facilities.

For purposes of estimating the proposed Project emissions, and based on information provided by the Project proponent, it was assumed that construction of the proposed Project would commence

as early as July 2025 and would last approximately 60 months, ending in June 2030. The analysis contained herein is based on the following assumptions (duration of phases is approximate):

- Site Preparation: July 2025–April 2026
- Tracker Foundations: April 2026–March 2027
- Underground Cabling: March 2027–February 2028
- Mechanical Installation: February 2028–March 2029
- Electrical Installation: March 2029–June 2030

Grading would be balanced on-site. For vendor and haul trucks it was assumed that there would be 0.25 miles of unpaved road travel per trip. Workers were assumed to park in a staging area (compacted soil) and travel 18 miles from Bakersfield, which is the nearest employment center, to the Project site. Water trucks are represented in the vendor truck category and were modeled with the default trip length of 7.37 miles (to account for on-site travel). Solar construction was stated to require a maximum of 1,000 acre-feet of water per year, which translates to 252 one-way water-truck trips per day of solar construction. All material deliveries are included in the haul truck category and are assumed to travel 66 miles from the edge of the SJVAB.

The proposed solar equipment is estimated to have a lifespan of over 35 years with regular maintenance. Upon completion of the proposed Project's operational term, the Project operator may, at its discretion, continue to generate and sell power from the proposed Project, or decommission and remove the system and its components. For purposes of estimating project decommissioning emissions, it was assumed that activity would commence in January 2066 and would last approximately 25 months. However, CalEEMod does not have emission factors beyond 2050. As such, for modeling purposes, year 2050 was assumed for the end of decommissioning. The analysis contained herein is based on the following assumptions (duration of phases is approximate):

- Removal of Tracker Foundations: November 2047–October 2048
- Removal of Mechanical Components: October 2048–December 2049

For vendor and haul trucks it was assumed that there would be 0.25 miles of unpaved road travel per trip. Workers were assumed to park in a staging area (compacted soil).

The construction schedules utilized in the analysis represent a reasonable "worst-case" analysis scenario because GHG emissions from construction equipment typically decrease and fuel efficiency typically increases over time due to improvements in technology and more stringent regulatory requirements. Construction equipment emission factors contained in CalEEMod Version 2022.1.1.29 decrease over time, reflecting these trends. Therefore, the construction emissions would be less if the construction schedule was adjusted to occur in later years.

Operation

Emissions from the operational phase of the proposed Project were estimated using CalEEMod Version 2022.1.1.29. Operational year 2030 was assumed consistent with completion of Project construction. CalEEMod was used to estimate potential Project-generated operational GHG emissions from area sources, energy sources, mobile sources, solid waste, refrigerants, water supply, and wastewater treatment. The methodologies used to estimate emissions from each source category are discussed below.

Area Sources

During operations and maintenance, one of the main sources of GHG emissions would be fugitive emissions from equipment containing SF_6 gas installed at the proposed substations. Six collector substations would include 138 kV breakers, and one Pacific Gas & Electric (PG&E) substation would include a 115 kV breaker, which would all contain SF_6 gas. It is estimated that the proposed Project would maintain a total of 806 pounds of SF_6 gas at the substations. Although leakage is unlikely, for the purposes of the proposed Project's emissions inventory, it was assumed that the breakers would have a maximum annual leak rate of 0.5 percent in accordance with the Institute of Electrical and Electronics Engineers (IEEE) PC37.122 - Standard for High-Voltage, Gas-Insulated Substations Rated Above 52 kV (IEEE 2018).

Landscape maintenance would also generate area source emissions from fuel combustion to power equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers. The emissions associated with landscape equipment use were estimated based on CalEEMod default values for emission factors (grams per square foot of building space per day) and the number of summer days (when landscape maintenance would generally be performed) and winter days.

Portable electrical generators that meet local and State emission controls would be used during emergency situations only for temporary back up power. As such, emissions from the temporary use of emergency generators during proposed Project operation are expected to be minimal and were not quantified.

Energy Sources

The estimation of operational energy emissions was based on CalEEMod land use defaults and total area (that is, square footage) of the proposed Project's land use. The proposed Project would not use natural gas during operation; as such, only GHG emissions from electricity use were estimated. There would be energy loss from the BESS during operation due to auxiliary loads for cooling and lighting and losses. It was estimated that there would be a 3 percent auxiliary load and that the batteries would charge and discharge 365 days per year.

The current version of CalEEMod assumes compliance with the 2019 Title 24 Building Energy Efficiency Standards (CAPCOA 2022); however, the proposed Project would be required to comply with the 2022 Title 24 Standards at a minimum. CalEEMod default energy intensity factors

(CO_2, CH_4, and N_2O mass emissions per kilowatt-hour) for PG&E are based on PG&E's 2021 energy mix.

Mobile Sources

The proposed Project would generate GHG emissions from mobile sources (vehicular traffic) as a result of employee commute trips. Project operations would include up to 20 permanent employees in the operation and maintenance building. CalEEMod was used to estimate emissions from proposed vehicular sources. It was also assumed that the proposed Project would receive nine delivery trucks per day. CalEEMod default data, trip length, trip modes, fleet mix, and emissions factors were used for the model inputs. CalEEMod default vehicle emission factors and vehicle fleet mix for 2030 were used to estimate emissions associated with vehicular sources.

Solid Waste

The proposed Project would generate solid waste and, therefore, result in CO_2e emissions associated with landfill off-gassing. CalEEMod default values for solid waste generation were used to estimate GHG emissions associated with solid waste.

Water and Wastewater

The proposed Project would involve the use of a private well for water and on-site septic system(s) for sewage disposal. Water consumption estimates for indoor water use were estimated using CalEEMod default values. According to the Project Description (Section 3.8, *Operational and Maintenance Activities*, of this Draft EIR), it is estimated that the solar facility would require 7 acre-feet of water per year for select panel washing, which would be provided by the on-site well. Electricity use for water supply is based on the indoor and outdoor water use default values in CalEEMod.

Refrigerants

CalEEMod was utilized to estimate fugitive GHG emissions from refrigerants used for air conditioning and refrigeration equipment. Different types of refrigeration equipment are utilized for different types of land uses and CalEEMod generates default refrigerant values based on land use subtype and industry data from the EPA. CalEEMod quantifies refrigerant emissions from leaks during regular operation and routine servicing over the equipment lifetime and then derives average annual emissions from the lifetime estimate. CalEEMod does not quantify emissions from the disposal of refrigeration and air conditioning equipment at the end of its lifetime.

Most of the refrigerants used today are HFCs or blends thereof, which can have high-GWP values. However, California is required to reduce HFC emissions 40 percent below 2013 levels by 2030 under SB1383, and regulations have been adopted to place GWP limits on HFCs, such as SB 1206. CalEEMod default HFC refrigerant values were conservatively used to estimate refrigerant emissions associated with the proposed Project. Use of ultra-low GWP or no-GWP alternatives would result in lower emissions.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist criteria, as established in Appendix G to the *CEQA Guidelines*, state that a project would have significant impacts related to GHG emissions if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

The *CEQA Guidelines* provide regulatory guidance on the analysis and mitigation of GHG emissions provided in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG-related and global climate change impacts. The State of California has not adopted emission-based significance thresholds for GHGs under CEQA.

Kern County, the Lead Agency for the proposed Project, has not developed quantitative thresholds of significance for GHG emissions either, but a project found to contribute to a net decrease in GHG emissions and found to be consistent with the adopted implementation of the CARB Climate Change Scoping Plan is presumed to have less than significant GHG impacts.

As discussed above, the SJVAPCD implemented a tiered approach to determining significance with respect to GHG emissions; however, in light of the Center for Biological Diversity v. California Department of Fish and Wildlife decision and SB 32, the quantitative threshold presented in the SJVAPCD CCAP is no longer appropriate for determining significance of Project-related GHG emissions. In *Center for Biological Diversity v. California Department of Fish and Wildlife*, the California Supreme Court held that showing an emission reduction percentage compared to BAU for an individual project greater than or equal to the statewide average reduction goal compared to BAU was not sufficient to demonstrate consistency.

Therefore, pursuant to the *CEQA Guidelines* thresholds, impacts were evaluated based on whether the proposed Project would be consistent with the state's applicable GHG reduction goals, plans, policies, and regulatory requirements—specifically, those plans and policies established in accordance with AB 32 and the state's Renewable Portfolio Standard (RPS) program as well as other federal, state, and local policies. A quantitative assessment of GHG emissions is provided for disclosure and informational purposes. GHG emissions from the construction and operation of the proposed Project were quantified and are disclosed in this document, consistent with OPR recommendations and industry practice (OPR 2018).

Project Impacts

As discussed previously, climate change impacts are inherently global and cumulative, and not Project-specific. The SJVAPCD's March 2015 *Guidance for Assessing and Mitigating Air Quality Impacts* (Section 8.9) states:

> *It is widely recognized that no single project could generate sufficient GHG emissions to noticeably change global climate temperature. However, the combination of GHG emissions from past, present and future projects could contribute substantially to global climate change. Thus, project-specific GHG emissions should be evaluated in terms of whether or not* [sic] *they would result in a cumulatively significant impact on global climate change* (SJVAPCD 2015).

Impact 4.8-1: Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction and Decommissioning

The proposed Project's construction and decommissioning activities would result in GHG emissions primarily from the use of off-road equipment, haul trucks, on-road vendor trucks, and worker vehicles. CalEEMod was used to calculate the annual GHG emissions. The proposed Project's construction activities were assumed to commence as early as July 2025 for purposes of analysis and would last approximately 60 months, ending in June 2030. As described in the *Methodology* section, although commencement of construction activities actually will occur later than the assumed commencement date, use of the July 2025 commencement date and corresponding schedule is conservative because emissions from vehicles and equipment typically decrease over time. On-site sources of GHG emissions include off-road equipment, and off-site sources include vendor trucks and worker vehicles. **Table 4.8-1:** *Estimated Annual Construction Greenhouse Gas Emissions—Unmitigated*, presents construction emissions for the proposed Project from on-site and off-site emission sources.

Table 4.8-1: Estimated Annual Construction Greenhouse Gas Emissions—Unmitigated

Year	GHG Emissions (MT CO2e)
2025	2,071.03
2026	6,241.35
2027	3,828.46
2028	6,684.52
2029	6,628.48
2030	2,819.66
Total Construction Emissions	**28,273.50**
Amortized Emissions (over 35 years)	**807.81**

Source: Final Air Quality, Greenhouse Gas Emissions, and Energy Technical Report (Dudek 2025)

Note:

Calculations use unrounded numbers; totals may not appear to sum exactly due to rounding.

Key: GHG = greenhouse gas; MT CO_2e = metric tons of carbon dioxide equivalent

As shown in **Table 4.8-1:** *Estimated Annual Construction Greenhouse Gas Emissions—Unmitigated*, the estimated total unmitigated GHG emissions from project construction activities would be approximately 28,274 MT CO_2e over the course of the construction period. Estimated Project-generated construction emissions amortized over 35 years would be approximately 808 MT CO_2e per year. GHG emissions from construction would be limited, occurring for approximately 5 years.

Table 4.8-2: *Estimated Annual Decommissioning Greenhouse Gas Emissions—Unmitigated*, presents the unmitigated decommissioning emissions for the proposed Project from on-site and off-site emission sources. As shown, the estimated total GHG emissions during decommissioning would be approximately 12,151 MT CO_2e over the course of the decommissioning period. Estimated Project-generated decommissioning emissions amortized over 35 years would be approximately 405 MT CO_2e per year.

Table 4.8-2: Estimated Annual Decommissioning Greenhouse Gas Emissions—Unmitigated

Year	GHG Emissions (MT CO_2e)
2066	885.20
2067	5,746.70
2068	5,519.07
Total Decommissioning Emissions	**12,150.98**
Amortized Emissions (over 35 years)	**347.17**

Source: Dudek 2025

Note:

Calculations use unrounded numbers; totals may not appear to sum exactly due to rounding.

Key: GHG = greenhouse gas; MT CO_2e = metric tons of carbon dioxide equivalent

The total amortized emissions for both construction and decommissioning of the proposed Project would be approximately 1,155 MT CO_2e per year.

Mitigation Measure MM 4.3-5 (Section 4.3, *Air Quality*) which targets criteria air pollutant emissions, would have the additional benefit of decreasing GHG emissions through use of electric equipment, use of diesel engines meeting Tier 4 emissions standards or better, and minimization of idling during construction activities. **Table 4.8-3:** *Estimated Annual Construction Greenhouse Gas Emissions—Mitigated,* presents the construction emissions for the project from on-site and off-site emission sources including Mitigation Measure MM 4.3-5.

Table 4.8-3: Estimated Annual Construction Greenhouse Gas Emissions - Mitigated

Year	GHG Emissions (MT CO_2e)
2025	2,051.79
2026	6,208.45
2027	3,790.98
2028	6,119.82
2029	6,418.17
2030	2,780.12
Total Construction Emissions	**27,369.33**
Amortized Emissions (over 35 years)	**781.98**

Source: Dudek 2025

Note:

Calculations use unrounded numbers; totals may not appear to sum exactly due to rounding.

Key: GHG = greenhouse gas; MT CO_2e = metric tons of carbon dioxide equivalent

As shown in **Table 4.8-3:** *Estimated Annual Construction Greenhouse Gas Emissions—Mitigated*, the estimated total mitigated GHG emissions from proposed Project construction activities would be approximately 27,369 MT CO_2e over the course of the construction period. Estimated Project-generated construction emissions amortized over 35 years would be approximately 782 MT CO_2e per year. GHG emissions from construction would be limited, occurring for approximately 5 years.

Mitigation Measure MM 4.3-5 targeting criteria air pollutant emissions would have the additional benefit of decreasing GHG emissions through use of electric equipment, use of diesel engines meeting Tier 4 emissions standards or better, and minimization of idling during construction activities. **Table 4.8-4:** *Estimated Annual Decommissioning Greenhouse Gas Emissions—Mitigated*, presents the decommissioning emissions for the proposed Project from on-site and off-site emission sources including Mitigation Measure MM 4.3-5. As shown, the estimated total mitigated GHG emissions during decommissioning would be approximately 10,932 MT CO_2e over the course of the decommissioning period. Estimated proposed Project-generated decommissioning emissions amortized over 35 years would be approximately 312 MT CO_2e per year.

Table 4.8-4: Estimated Annual Decommissioning Greenhouse Gas Emissions - Mitigated

Year	GHG Emissions (MT CO_2e)
2066	878.30
2067	5,500.73
2068	4,553.17
Total Decommissioning Emissions	**10,932.2**
Amortized Emissions (over 35 years)	**312.35**

Source: Dudek 2025

Note:

Calculations use unrounded numbers; totals may not appear to sum exactly due to rounding.

Key: GHG = greenhouse gas; MT CO_2e = metric tons of carbon dioxide equivalent

The total amortized emissions for both construction and decommissioning of the proposed Project would be approximately 1,094 MT CO_2e per year accounting for Mitigation Measure MM 4.3-5.

Operations

Operation of the proposed Project would generate GHG emissions from: passenger vehicle and delivery truck trips to, and from, the Project site; area sources, including landscape maintenance equipment operation and SF_6 leakage from substations; energy use (generation of electricity consumed by the proposed Project); water use; solid waste disposal; and refrigerants. CalEEMod and a spreadsheet model were used to calculate the annual GHG emissions based on the operational assumptions described in Section 4.8.4, *Impacts and Mitigation Measures, Methodology, Operation*. The estimated operational Project-generated GHG emissions are shown in **Table 4.8-5:** *Summary of Estimated Annual Operational Greenhouse Gas Emissions*.

Table 4.8-5: Summary of Estimated Annual Operational Greenhouse Gas Emissions

Emissions Source	GHG Emissions (MT CO_2e)
Mobile	417.46
Area	44.44
Energy	8,247.80
Water	4.08
Waste	20.28
Refrigerants	2.16
Total Operational Emissions	**8,736.22**
Amortized Construction and Decommissioning Emissions (over 35 years)	*1,094.33*
Project Operation + Amortized Construction Total	**9,830.55**

Source: Dudek 2025

Note:

Calculations use unrounded numbers; totals may not appear to sum exactly due to rounding.

Key: GHG = greenhouse gas; MT CO_2e = metric tons of carbon dioxide equivalent

As shown in **Table 4.8-5:** *Summary of Estimated Annual Operational Greenhouse Gas Emissions*, estimated annual Project-generated GHG emissions would be approximately 9,831 MT CO_2e per year as a result of proposed Project operations and amortized construction and decommissioning.

Avoided GHG Emissions

The proposed Project would provide a source of renewable energy to support statewide RPS targets of 60 percent by 2030 and 100 percent by 2045, consistent with the renewable energy targets in the Scoping Plan and required by SB 100 and EO B-55-18. The generation of renewable energy would displace GHG emissions that would otherwise be generated by fossil-fuel power plants. As described above, the proposed Project would generate approximately 9,831 MT CO_2e per year.

According to PVWatts, the proposed Project is expected to produce an estimated 3,390,332 megawatt-hours of electricity per year. The default CalEEMod CO_2e emission factor for PG&E

was 206 pounds of CO_2e per megawatt-hour from 2019 (CAPCOA 2022). For purposes of analysis, it was assumed that PG&E would meet the EO B-55-18 carbon neutrality target in 2045 with or without the proposed Project, reducing the CO_2e emission factor for PG&E to 0 pounds of CO_2e per megawatt-hour in 2045. The actual timing of the progression from the current power mix to 100 percent renewable energy is unknown at this time, so the analysis assumed a linear reduction. As a result, the analysis credits the proposed Project with avoiding less GHG emissions over time given the overall statewide shift to renewable energy.

Based on these assumptions, the proposed Project would avoid a total of 1,461,746 MT CO_2e from 2030 through 2044. Accounting for 35 years of the total annual operational and amortized construction and decommissioning emissions shown in **Table 4.8-5:** *Summary of Estimated Annual Operational Greenhouse Gas Emissions*, the proposed Project would emit approximately 344,069 MT CO_2e during operation. Therefore, the proposed Project would avoid a net 1,117,677 MT CO_2e over its lifetime. While the proposed Project is expected to be operational at least through 2065, it would no longer displace GHG emissions that would otherwise be generated by fossil-fuel power plants after the state achieves 100 percent renewable energy in 2045. Additionally, the solar energy provided by the project is a much cleaner source of energy than traditional sources used for the generation of electricity, such as the burning of coal, fuel oil, or natural gas. This clean energy source is considered a best performance standard (BPS) for electricity generation. Projects implementing BPS for GHG would be determined to have a less than significant impact (SJVAPCD 2009b)

PG&E Midway (Midway) Substation Upgrades

The proposed Project includes enlarging the Midway Substation's 500 kV yard within the PG&E owned Midway Substation property boundaries. The PG&E Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities as part of the proposed Project. To support the proposed Buttonbush Solar and Storage Project's communication infrastructure, PG&E may install 2 four-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest. This fiber-optic line is critical for the safe and efficient operation of the proposed Project. The fiber-optic line route will be trenched underground from the Midway Substation to the Point of Change of Ownership.

PG&E proposes to remove the existing precast security wall at the northwest side of the Midway Substation and replace it with a new 12-foot wall, similar in appearance and material, approximately 510 feet north and 140 feet west of the existing walls of the 500 kV yard within Midway Substation. Grading of the connection area may be required and prior to any ground-disturbing activities. PG&E would acquire all necessary permits. Within the proposed graded area of the Midway Substation, PG&E would install approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker. This would include installing equipment foundations and concrete trenches, equipment cabinets, bus structures, communication lines, conduits, pull boxes, and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, PG&E would install up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from Midway Substation to the Point of Change

of Ownership for the proposed project. Up to four approximately 175-foot-tall lattice steel towers or tubular steel poles would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads.

Similar to other components of the proposed Project, Midway Substation upgrades would generate GHG emissions during construction, operations, and decommissioning, primarily from the use of off-road equipment, haul trucks, on-road vendor trucks, and worker vehicles. The Midway Substation upgrades would contribute to a portion of the proposed Project's modeled GHG emissions reported in **Table 4.8-1** through **Table 4.8-5** resulting from the construction, operation, and decommissioning activities. Further, PG&E should implement Mitigation Measure MM 4.3-5 that would have the benefit of decreasing GHG emissions through use of electric equipment, use of diesel engines meeting Tier 4 emissions standards or better, and minimization of idling during construction activities, which would be consistent with certain requirements of PG&E's BMPs 5 and 6 (Appendix M).

Summary

Although the proposed Project would generate GHG emissions during construction, operations, and decommissioning, it would provide a source of renewable energy that would avoid significantly more GHG emissions that otherwise would be generated by fossil-fuel power plants. Though the analysis shows that this would be the case without application of any mitigation, Mitigation Measure MM 4.3-5 targeting criteria air pollutant emissions would have the additional benefit of decreasing GHG emissions. Over its lifetime, the proposed Project would avoid an estimated net 1,117,677 MT CO_2e. Furthermore, the proposed Project would contribute to achieving the state's RPS goals and would not conflict with state goals to reduce GHG emissions. Therefore, the proposed Project would generate less than significant GHG-related impacts.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Less than significant.

Impact 4.8-2: Would the Project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gas?

The proposed Project regulatory setting (Section 4.8.3, *Regulatory Setting*) describes the applicable plans, policies, and regulations adopted at the federal, state, and local levels for the purpose of reducing GHG emissions in Kern County. As discussed above, impacts were evaluated based on whether the proposed Project would be consistent with the state's applicable GHG reduction goals, plans, policies, and regulatory requirements as well as other federal, state, and local policies, as provided in the following analyses.

Greenhouse Gas-Related Laws and Regulations

The proposed Project's consistency with statewide GHG reduction strategies is summarized in detail in **Table 4.8-6:** *Potentially Applicable GHG-Related Laws and Regulations.*

Table 4.8-6: Potentially Applicable GHG-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for the Project
Building Components/Facility Operations		
Building Components	CALGreen Code (Title 24, Part 11) California Energy Code (Title 24, Part 6)	The proposed Project must comply with applicable energy efficiency standards for nonresidential buildings, including requirements pertaining to roofing, ceilings, insulation, walls, flooring, fenestration (windows and doors), and other building components.
Finish Materials	CALGreen Code	The proposed Project must comply with pollutant control requirements for finish materials. For example, materials including adhesives, sealants, caulks, paints and coatings, carpet systems, and composite wood products must meet requirements in CALGreen Code to ensure pollutant control. (CALGreen Code Section 5.504.4.)
Appliances	CALGreen Code California Energy Code Appliance Efficiency Regulations (Title 20 Standards)	Wet and dry appliances associated with the proposed Project, including toilets, faucets, urinals, refrigerators, and air conditioners, must meet various energy and water efficiency requirements.
Lighting	Title 20 Standards	Lighting associated with the proposed Project will be subject to energy efficiency requirements contained in Title 20 Standards. ▪ General Lighting: Indoor and outdoor lighting associated with the proposed Project must comply with applicable appliance efficiency regulations (Title 20 Standards, Sections 1605.1[j],[k],[n], 1605.3[j],[k],[n]) ▪ Emergency lighting and self-contained lighting: The proposed Project must also comply with applicable appliance efficiency regulations (Title 20 Standards, Sections 1605.1[l], 1605.3[l]) ▪ Traffic Signal Lighting: For any necessary proposed Project improvements involving traffic lighting, traffic signal modules and traffic signal lamps will need to comply with applicable appliance efficiency regulations (Title 20 Standards, Sections 1605.1[m], 1605.3[m])

Table 4.8-6: Potentially Applicable GHG-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for the Project
	California Energy Code	Lighting associated with the proposed Project will also be subject to energy efficiency requirements contained in Title 24, Part 6, which contains energy standards for nonresidential indoor lighting and outdoor lighting. (See Title 24 Part 6 Compliance Manual, Sections 5 and 6.)
	AB 1109	Lighting associated with the proposed Project will be subject to energy efficiency requirements adopted pursuant to AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general purpose lighting and to reduce electricity consumption 25 percent for indoor commercial lighting.
Bicycle and Vehicle Parking	CALGreen Code	The proposed Project will be required to provide compliant bicycle parking, fuel-efficient vehicle parking, and electric vehicle charging spaces (CALGreen Code Sections 5.106.4; 5.106.5.1; 5.106.5.3).
	California Energy Code	The proposed Project is also subject to parking requirements contained in Title 24, Part 6. For example, parking capacity is to meet but not exceed minimum local zoning requirements, and the project should employ approved strategies to reduce parking capacity (Title 24, Part 6, section 106.6).
Refrigerants	CARB Management of High-GWP Refrigerants for Stationary Sources	Any refrigerants associated with the proposed Project will be subject to CARB standards. CARB's Regulation for the Management of High-GWP Refrigerants for Stationary Sources: (1) reduces emissions of high-GWP refrigerants from leaky stationary, nonresidential refrigeration equipment; (2) reduces emissions resulting from the installation and servicing of stationary refrigeration and air conditioning appliances using high-GWP refrigerants; and (3) requires verification of GHG emission reductions (CCR, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Sub article 5.1, Section 95380 et seq.).
	CALGreen Code	Installations of heating, ventilation, air conditioning, refrigeration, and fire suppression equipment must comply with CALGreen Code Sections 5.508.1.1 and 508.1.2, which prohibits CFCs, halons, and certain HCFCs and HFCs.
Consumer Products	CARB High-GWP GHGs in Consumer Products	All consumer products associated with the proposed Project will be subject to CARB standards. CARB's consumer products regulations set VOC limits for numerous categories of consumer products and limits the reactivity of the ingredients used in numerous categories of aerosol coating products (CCR, Title 17, Division 3, Chapter 1, Subchapter 8.5).
Construction		
Use of Off-Road Diesel Engines, Vehicles, and	CARB In-Use Off-Road Diesel Vehicle	Any relevant vehicle or machine use associated with the proposed Project will be subject to CARB standards. The CARB In-Use-Off-Road Diesel Vehicle Regulation applies to certain off-road diesel engines,

Table 4.8-6: Potentially Applicable GHG-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for the Project
Equipment	Regulation	vehicles, or equipment greater than 25 horsepower. The regulation: (1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; (2) requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; (3) restricts the adding of older vehicles into fleets starting on January 1, 2014; and (4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (that is, exhaust retrofits).
	Cap-and-Trade Program	Transportation fuels (for example, gasoline) used in equipment operation would be subject to the Cap-and-Trade Program. (See "Energy Use," below.)
Greening New Construction	CALGreen Code	All new construction, including the proposed Project, must comply with CALGreen Code, as discussed in more detail throughout this table. Adoption of the mandatory CALGreen Code standards for construction has been essential for improving the overall environmental performance of new buildings; it also sets voluntary targets for builders to exceed the mandatory requirements.
Construction Waste	CALGreen Code	The proposed Project will be subject to CALGreen Code requirements for construction waste reduction, disposal, and recycling, such as a requirement to recycle and/or salvage for reuse a minimum of 50 percent of the nonhazardous construction waste in accordance with Section 5.408.1.1; 5.408.1.2; or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent.
Worker, vendor, and truck vehicle trips (on-road vehicles)	Cap-and-Trade Program	Transportation fuels (for example, gasoline) used in worker, vendor, and truck vehicle trips would be subject to the Cap-and-Trade Program.
Solid Waste		
Solid Waste Management	Landfill Methane Control Measure	Waste associated with the proposed Project will be disposed per state requirements for landfills, material recovery facilities, and transfer stations.
	Mandatory Commercial Recycling (AB 341)	AB 341 will require the proposed Project, if it generates 4 cubic yards or more of commercial solid waste per week, to arrange for recycling services, using one of the following: self-haul; subscribing to a hauler(s); arranging for pickup of recyclable materials; or subscribing to a recycling service that may include mixed waste processing that yields diversion results comparable to source separation. The proposed Project will also be subject to a local commercial solid waste recycling program required to be implemented by each jurisdiction under AB 341.

Table 4.8-6: Potentially Applicable GHG-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for the Project
	CALGreen Code	The proposed Project will be subject to a CALGreen Code requirement to provide areas that serve the entire building and are identified for the depositing, storage, and collection of nonhazardous materials for recycling (CALGreen Code Section 5.410.1).
Energy Use		
Renewable Energy	California RPS (SB X1-2, SB 350, and SB 100)	Energy providers associated with the proposed Project will be required to comply with RPS set by SB X1-2, SB 350, and SB 100. ▪ SB X1-2 requires investor-owned utilities, publicly owned utilities, and electric service providers to increase purchases of renewable energy such that at least 33 percent of retail sales are procured from renewable energy resources by December 31, 2020. In the interim, each entity was required to procure an average of 20 percent of renewable energy for the period of January 1, 2011, through December 31, 2013; and will be required to procure an average of 25 percent by December 31, 2016, and 33 percent by 2020. ▪ SB 350 requires retail sellers and publicly owned utilities to procure 50 percent of their electricity from eligible renewable energy resources by 2030. ▪ SB 100 increased the standards set forth in SB 350 establishing that 44 percent of the total electricity sold to retail customers in California per year by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030, be secured from qualifying renewable energy sources. SB 100 states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100 percent of the retail sales of electricity to California by 2045.
Vehicular/Mobile Sources		
General	SB 375 and Kern COG RTP/SCS	The proposed Project is subject to, and complies with, Kern COG's 2022 RTP/SCS.
Fuel	LCFS/ EO S-01-07	Auto trips associated with the proposed Project will be subject to LCFS (EO S-01-07), which requires a 10 percent or greater reduction in the average fuel carbon intensity by 2020, with a 2010 baseline for transportation fuels in California regulated by CARB. The program establishes a strong framework to promote the low carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG goals.
	Cap-and-Trade Program	Use of gasoline and diesel fuel associated with the proposed Project will be subject to the Cap-and-Trade Program though regulation of importers and distributors of fossil fuels. Specifically, cap-and-trade compliance obligations apply to suppliers of nonanthropogenic gas, reformulated blendstock for oxygenate blending (RBOB), distillate fuel oils, and liquefied petroleum gas that meet or exceed

Table 4.8-6: Potentially Applicable GHG-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for the Project
		specified emissions thresholds. The threshold that triggers a cap-and-trade compliance obligation for a fuel supplier is 25,000 MT or more of CO_2e annually from the GHG emissions that would result from full combustion or oxidation of quantities of fuels (including natural gas, RBOB, distillate fuel oil, liquefied petroleum gas, and blended fuels that contain these fuels) imported and/or delivered to California.
Light-Duty Vehicles	AB 1493 (or the Pavley Standard)	Cars that drive to and from the Project site will be subject to AB 1493, which directed CARB to adopt a regulation requiring the maximum feasible and cost-effective reduction of GHG emissions from new passenger vehicles. Pursuant to AB 1493, CARB adopted regulations that establish a declining fleet average standard for CO_2, CH_4, N_2O, and HFCs (air conditioner refrigerants) in new passenger vehicles and light-duty trucks beginning with the 2009 model year and phased in through the 2016 model year. These standards are divided into those applicable to lighter and those applicable to heavier portions of the passenger vehicle fleet. The regulations will reduce "upstream" smog-forming emissions from refining, marketing, and distribution of fuel.
	Advanced Clean Car and ZEV Programs	Cars that drive to and from the Project site will be subject to the Advanced Clean Car and ZEV Programs. In January 2012, CARB approved a new emissions-control program for model years 2017 through 2025. The program combines the control of smog, soot and global warming gases and requirements for greater numbers of ZEVs into a single package of standards called Advanced Clean Cars. The ZEV program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in the 2018–2025 model years.
	EPA and NHTSA GHG and CAFE standards.	Mobile sources that travel to and from the Project site would be subject to EPA and NHTSA GHG and CAFE standards for passenger cars, light-duty trucks, and medium-duty passenger vehicles (75 FR 25324–25728 and 77 FR 62624–63200).
Medium- and Heavy-Duty Vehicles	CARB In-Use On-Road Heavy-Duty Diesel Vehicles Regulation (Truck and Bus	Any heavy-duty trucks associated with the proposed Project will be subject to CARB standards. The regulation requires diesel trucks and buses that operate in California to be upgraded to reduce emissions. Newer heavier trucks and buses must meet PM filter requirements. Lighter and older heavier trucks must be replaced starting January 1, 2015. By January 1, 2023, nearly all trucks and buses will need to have 2010 model year engines or equivalent.

Table 4.8-6: Potentially Applicable GHG-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for the Project
	Regulation)	The regulation applies to nearly all privately and federally owned diesel-fueled trucks and buses and to privately and publicly owned school buses with a gross vehicle weight rating greater than 14,000 pounds.
	CARB In-Use Off-Road Diesel Vehicle Regulation	Any relevant vehicle or machine use associated with the proposed Project will be subject to CARB standards. The CARB In-Use-Off-Road Diesel Vehicle Regulation applies to certain off-road diesel engines, vehicles, or equipment greater than 25 horsepower. The regulation: (1) imposes limits on idling, requires a written idling policy, and requires a disclosure when selling vehicles; (2) requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System) and labeled; (3) restricts the adding of older vehicles into fleets starting on January 1, 2014; and (4) requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (that is, exhaust retrofits).
	Heavy-Duty Vehicle GHG Emission Reduction Regulation	Any relevant vehicle or machine use associated with the proposed Project will be subject to CARB standards. The CARB Heavy-Duty Vehicle GHG Emission Reduction Regulation applies to heavy-duty tractors that pull 53-foot or longer box-type trailers (CCR, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 1, Section 95300 et seq.). Fuel efficiency is improved through improvements in tractor and trailer aerodynamics and the use of low-rolling resistance tires.
	EPA and NHTSA GHG and CAFE standards.	Mobile sources that travel to and from the Project site would be subject to EPA and NHTSA GHG and CAFE standards for medium- and heavy-duty vehicles (76 FR 57106–57513).
Water Use		
Water Use Efficiency	Emergency State Water Board Regulations	Water use associated with the proposed Project will be subject to emergency regulations. On May 18, 2016, partially in response to EO B-27-16, the State Water Board adopted emergency water use regulations (CCR, Title 23, Section 864.5 and amended and re-adopted Sections 863, 864, 865, and 866). The regulation directs the State Water Board, Department of Water Resources, and CPUC to implement rates and pricing structures to incentivize water conservation, and calls upon water suppliers, homeowners' associations, California businesses, landlords, tenants, and wholesale water agencies to take stronger conservation measures.
	EO B-37-16	Water use associated with the proposed Project will be subject to Emergency EO B-37-16, issued May 9,

Table 4.8-6: Potentially Applicable GHG-Related Laws and Regulations

Project Component	Applicable Laws/ Regulations	GHG Reduction Measures Required for the Project
		2016, which includes the permanent prohibition of water-wasting practices such as hosing off sidewalks, driveways, and other hardscapes; washing automobiles with hoses not equipped with a shut-off nozzle; and watering lawns in a manner that causes runoff, or within 48 hours after measurable precipitation.
	EO B-40-17	EO B-40-17 lifted the drought emergency in all California counties except Fresno, Kings, Tulare, and Tuolumne. It also rescinded EO B-29-15, but expressly states that EO B-37-16 remains in effect and directs the State Water Resources Control Board to continue development of permanent prohibitions on wasteful water use to which the proposed Project will be subject.
	CALGreen Code	The proposed Project is subject to CALGreen Code's water efficiency standards, including a required 20 percent mandatory reduction in indoor water use. (CALGreen Code, Division 4.3.)
	California Water Code, Division 6, Part 2.10, Sections 10910–10915.	Development and approval of the proposed Project requires the development of a Project-specific water supply assessment. (See Section 4.10, *Hydrology and Water Quality*, of this Draft EIR.)
	Cap-and-Trade Program	The proposed Project proposes utilization of a private well for water and an on-site septic system for sewage disposal. Thus, the Cap-and-Trade Program does not apply to the proposed Project.
	California RPS (SB X1-2, SB 350, SB 100)	Electricity usage associated with water and wastewater supply, treatment, and distribution associated with the project will be required to comply with RPS set by SB X1-2, SB 350, and SB 100.

Source: Dudek 2025

Key: AB = Assembly Bill; CAFE = Corporate Average Fuel Economy; CALGreen = California Green Building Standards; CARB = California Air Resources Board; CCR = California Code of Regulations; CEC = California Energy Commission; CFC = chlorofluorocarbon; CH_4 = methane; CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; CPUC = California Public Utilities Commission; EO = Executive Order; EPA = Environmental Protection Agency; FR = Federal Register; GHG = greenhouse gas; GWh = gigawatt-hours; GWP = global warming potential; HCFC = hydrochlorofluorocarbon; HFC = hydrofluorocarbon; gpm = gallons per minute; Kern COG = Kern Council of Governments; LCFS = Low Carbon Fuel Standard; MT = metric tons; N_2O = nitrous oxide; NHTSA = National Highway Traffic Safety Administration; PM = particulate matter; psi = pounds per square inch; RBOB = reformulated blendstock for oxygenate blending; RPS = Renewable Portfolio Standard; RTP/SCS = Regional Transportation Plan/Sustainable Communities Strategy; SB = Senate Bill; VOC = volatile organic compound; ZEV = zero-emission vehicle.

As shown in **Table 4.8-6:** *Potentially Applicable GHG-Related Laws and Regulations*, the proposed Project would be consistent with the various GHG-reducing regulations.

Kern County General Plan

The KCGP includes various goals and policies that promote the use of clean and renewable energy sources, reduce waste, conserve water, and promote the efficient and sustainable use of energy. The Land Use, Open Space, Conservation, Circulation, and Energy Elements include goals and policies that result in benefits associated with reducing GHG emissions. **Table 4.8-7:** *Consistency with Kern County General Plan Policies,* summarizes the proposed Project's consistency with the KCGP.

Table 4.8-7: Consistency with Kern County General Plan Policies

General Plan Policies	Project Consistency
1.10.2 Air Quality	
Implementation Measure G. Discretionary development projects involving the use of tractor-trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to: a. Minimizing idling time. b. Electrical overnight plug-ins.	*Consistent.* The proposed Project's heavy-duty diesel vehicles used during construction and operation will minimize idling time on-site in accordance with CARB's ATCM (13 CCR Section 2485). No trucks would be operating overnight or have transport refrigeration units needing overnight plug-ins.
Implementation Measure H. Discretionary projects may use one or more of the following to reduce air quality effects: a. Pave dirt roads within the development. b. Pave outside storage areas. c. Provide additional low VOC producing trees on landscape plans. d. Use of alternative-fuel fleet vehicles or hybrid vehicles. e. Use of emission control devices on diesel equipment. f. Develop residential neighborhoods without fireplaces or with the use of Environmental Protection Agency certified, low-emission nonanthropogenic gas fireplaces. g. Provide bicycle lockers and shower facilities on-site. h. Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86). i. The use and development of park and ride facilities in outlaying areas. j. Other strategies that may be recommended by the local Air Pollution Control Districts.	*Consistent.* The proposed Project would use alternative-fuel fleet vehicles or hybrid vehicles to the extent feasible during operation. The proposed Project would not include fireplaces or any nonanthropogenic gas use on-site during operation. On-site bicycle lockers and shower facilities are not practical for the proposed Project due to the rural location of the Project site. There are no residences or commercial areas in close proximity to the Project site, and thus the use of bicycles for the operations and maintenance staff is not feasible. The Project proponent will encourage the use of the park and ride facilities for its employees during operation.

Table 4.8-7: Consistency with Kern County General Plan Policies

5.4.5. Solar Energy Development	
Goal: Encourage safe and orderly commercial solar development. **Policies** 1. The County shall encourage domestic and commercial solar energy uses to conserve fossil fuel and improve air quality. 2. The County should attempt to identify and remove disincentives to domestic and commercial solar energy development. 3. The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards. 4. The County should encourage solar development in the desert and valley regions previously disturbed, and discourage development of energy projects on undisturbed land supporting state or federally protected plant and wildlife species.	*Consistent.* The proposed Project would include up to 2 GW of solar PV on-site. The proposed Project is located in the desert and valley regions. The proposed Project would not pose significant environmental or public health and safety concerns.

Source: Dudek 2025

Key: ATCM = Airborne Toxic Control Measure; CARB = California Air Resources Board; CCR = California Code of Regulations; County = Kern County; GW = gigawatts; MM = mitigation measure; PV = photovoltaic; VOC = volatile organic compounds.

As discussed in **Table 4.8-7:** *Consistency with Kern County General Plan Policies*, the proposed Project would be consistent with the KCGP's GHG-related policies and measures.

CARB 2022 Scoping Plan

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32 and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. **Table 4.8-8:** *Project Consistency with Scoping Plan Greenhouse Gas Emission-Reduction Strategies*, highlights applicable measures and recommendations that have been developed under the Scoping Plan and the proposed Project's consistency with those measures.

Table 4.8-8: Project Consistency with Scoping Plan Greenhouse Gas Emission-Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
Transportation Sector		
Advanced Clean Cars	T-1	*Consistent.* The proposed Project's employees would purchase vehicles in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.
LCFS	T-2	*Consistent.* Motor vehicles driven by the proposed Project's employees would use compliant fuels.
LCFS (18 percent reduction in carbon intensity by 2030)	Recommended	*Consistent.* Motor vehicles driven by the proposed Project's employees would use compliant fuels.
Vehicle Efficiency Measures ▪ Tire Pressure ▪ Fuel Efficiency Tire Program ▪ Low-Friction Oil ▪ Solar-Reflective Automotive Paint and Window Glazing	T-4	*Consistent.* These standards would be applicable to the light-duty vehicles that would access the Project site. Motor vehicles driven by the project's employees would maintain proper tire pressure when their vehicles are serviced. The proposed Project's employees would replace tires in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase. Motor vehicles driven by the proposed Project's employees would use low-friction oils when their vehicles are serviced. The proposed Project's employees would purchase vehicles in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase. In addition, the proposed Project would not prevent CARB from implementing this measure.
Heavy-Duty Vehicle GHG Emission Reduction ▪ Tractor-Trailer GHG Regulation ▪ Heavy-Duty Greenhouse Gas Standards for New Vehicle and Engines (Phase I)	T-7	*Consistent.* Heavy-duty vehicles would be required to comply with CARB GHG reduction measures. In addition, the proposed Project would not prevent CARB from implementing this measure.
Medium- and Heavy-Duty Vehicle Hybridization Voucher Incentive project	T-8	*Consistent.* The proposed Project's medium- and heavy-duty vehicles (for example, water delivery trucks) could take advantage of the vehicle hybridization action, which would reduce GHG emissions through increased fuel efficiency. In addition, the project would not prevent CARB from implementing this measure.
Transportation Electrification	2022 Appendix D	*Consistent.* The proposed Project would include EV charging infrastructure at the operations and maintenance building that meets the voluntary standard in the CALGreen Code at time of project approval.

Table 4.8-8: Project Consistency with Scoping Plan Greenhouse Gas Emission-Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
VMT Reduction		
Does not result in the loss or conversion of natural and working lands	2022 Appendix D	*Inconsistent.* The Project site is active agricultural land and implementation of the proposed Project would result in conversion of that land. Long-term reductions in water availability are the primary factor driving the transition of the project site from farming to solar energy development. However, the conversion of agricultural land would support state and local renewable energy goals, produce reliable electricity, and promote economic and energy resiliency. Furthermore, if the proposed Project is decommissioned, the properties could resume agricultural production, as the proposed Project does not include a zone change and, therefore, would not result in a permanent conversion of agricultural lands.
Uses all-electric appliances without any nonanthropogenic gas connections and does not use propane or other fossil fuels for space heating, water heating, or indoor cooking	2022 Appendix D	*Consistent.* The operations and maintenance building will be all-electric. There will be no natural gas used on-site.
Electricity and Nonanthropogenic Gas Sector		
Energy Efficiency Measures (Electricity)	E-1	*Consistent.* The proposed Project will comply with current Title 24, Part 6, of the CCRs energy efficiency standards for electrical appliances and other devices at the time of building construction.
Energy Efficiency (Nonanthropogenic Gas)	CR-1	*Consistent.* The proposed Project would be all-electric and would not use nonanthropogenic gas during operation.
Renewable Portfolios Standard (33 percent by 2020)	E-3	*Consistent.* While the proposed Project would support this goal, the 2020 goal has passed and would no longer apply.
Renewable Portfolios Standard (50 percent by 2050)	Recommended	*Consistent.* The proposed Project would support the RPS goal by production of up to 2 GW of solar electricity.

Table 4.8-8: Project Consistency with Scoping Plan Greenhouse Gas Emission-Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
Green Buildings		
Beyond Code: Voluntary Programs at the Local Level (Greening New Public Schools, Residential and Commercial Buildings)	GB-3	*Consistent.* The proposed Project's operations and maintenance building would be built in accordance with Title 11 CALGreen standards in place at the time building permits are obtained.
Recycling and Waste Management Sector		
Mandatory Commercial Recycling	RW-3	*Consistent.* During construction, operation, and decommissioning, the proposed Project would comply with all state regulations related to solid waste generation, storage, and disposal, including the California Integrated Waste Management Act, as amended. During construction, all wastes would be recycled to the maximum extent possible.
High Global Warming Potential Gases Sector		
Limit High GWP Use in Consumer Products	H-4	*Consistent.* The proposed Project's employees would use consumer products that would comply with the regulations that are in effect at the time of manufacture.
Air Conditioning Refrigerant Leak Test During Vehicle Smog Check	H-5	*Consistent.* Employees of the proposed Project would conduct air conditioning refrigerant leak tests during periodic vehicle smog checks.
SF_6 Leak Reduction Gas-Insulated Switchgear	H-6	*Consistent.* The proposed Project would use gas-insulated switchgear that would be subject to CARB regulations and meet the leak rate mandates.

Source: Dudek 2025

Key: CALGreen = California Green Building Standards; CARB = California Air Resources Board; EV = electric vehicle; GHG = greenhouse gas; GW = gigawatts; RPS = Renewable Portfolio Standard; Scoping Plan = CARB Climate Change Scoping Plan: A Framework for Change Scoping Plan; SCS = Sustainable Communities Strategy; SF_6 = sulfur hexafluoride; VMT = vehicle miles traveled.

The proposed Project would be consistent with the applicable Scoping Plan Measures except for the Measure related to loss or conversion of natural and working lands. The Project site is active agricultural land and implementation of the proposed Project would result in conversion of that land. However, the conversion of agricultural land would support state and local renewable energy goals, produce reliable electricity, and promote economic and energy resiliency. Furthermore, if the proposed Project is decommissioned, the properties could resume agricultural production.

As discussed above in Section 4.8.3, *Regulatory Setting, State, CARB Climate Change Scoping Plan*, a project is considered consistent with the Scoping Plan if it meets the general policies in reducing GHG emissions to facilitate the achievement of the state's goals and does not impede attainment of those goals. A project need not be in perfect conformity with each and every planning policy or goal to be consistent. Therefore, based on the analysis in **Table 4.8-8:** *Project Consistency with Scoping Plan Greenhouse Gas Emission-Reduction Strategies*, the proposed Project would be consistent with the Scoping Plan.

Kern COG's 2022 RTP/SCS

Kern COG's 2022 RTP/SCS incorporates local land use projections and circulation networks in city and county general plans. The SCS component strives to reduce polluting tailpipe emissions from passenger vehicle and light-duty truck travel by better coordinating transportation expenditures with forecasted development patterns to help meet CARB GHG targets for the region. The 2022 RTP/SCS is not directly applicable to the proposed Project because the purpose is to provide direction and guidance by making the best transportation and land use choices for future development. Nevertheless, the proposed Project would not conflict with the goals and policies of the 2022 RTP/SCS. In addition, the proposed Project would not impact local transportation or land use during operation.

Senate Bill 32 and Executive Order S-3-05

As discussed in Section 4.8.3, EO S-3-05 establishes that GHG emissions should be reduced to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050. SB 32 establishes for a statewide GHG emissions reduction target whereby CARB, in adopting rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions, shall ensure that statewide GHG emissions are reduced to at least 40 percent below 1990 levels by December 31, 2030. While there are no established protocols or thresholds of significance for that future year analysis, CARB forecasts that compliance with the current Scoping Plan puts the state on a trajectory of meeting these long-term GHG goals, although the specific path to compliance is unknown (CARB 2014).

As the main objective of the proposed Project is to assist California Investor-Owned utilities in meeting their obligations under California's RPS Program and assist California in meeting the GHG emissions reduction goals, the proposed Project would not impede attainment of the GHG reduction goals for 2030 or 2050 identified in EO S-3-05 and SB 32.

Consideration of Mitigation Measures

The Office of the California Attorney General maintains a website with a list of CEQA mitigation measures for global climate change impacts. The Attorney General has listed some examples of types of mitigation measures that local agencies may consider to offset or reduce global climate change impacts from a project. The mitigation measures are examples and not intended to be exhaustive, but instead provide measures and policies that could be undertaken. Moreover, the measures cited may not be appropriate for every project, so the Attorney General suggests that the lead agency should use its own informed judgment in deciding which measures it would analyze, and which measures it would require, for a given project.

The Attorney General suggests measures that could be undertaken or funded by a diverse range of projects, related to: energy efficiency; renewable energy; water conservation and efficiency; solid waste measures; land use measures; transportation and motor vehicles; and carbon offsets. However, most of the suggested measures from the Attorney General's office would not be applicable to the proposed Project, since they are more appropriate and applicable measures to reduce long-term operational GHG emissions, and the majority of emission sources from the proposed Project are limited in duration. Long-term operational emissions would be minimal compared to the emissions avoided through the proposed Project's renewable energy production.

The impacts of GHG emissions on climate change are indirect, climate change is a worldwide phenomenon, and Project-level emissions cannot be correlated with specific impacts based on currently available science. However, based on the analysis above, the proposed Project would be consistent with California's strategies to reduce GHG emissions to the levels required by AB 32, as well as state GHG emission reductions post-2020. As a renewable energy project, the proposed Project would contribute to achieving the mandated emission-reduction targets established by AB 32. Additionally, the proposed Project would comply with any applicable forthcoming regulations or requirements adopted under AB 32 or imposed by the state or federal government.

Therefore, considering the proposed Project's minimal annual emissions and anticipated reduction in overall GHG emissions, the proposed Project is not expected to significantly contribute to global warming or climate change. Furthermore, as the proposed Project would have an electric power generating capacity of 2 GW, the proposed Project would be consistent with the Attorney General's recommended measures to reduce GHG emissions. Specifically, the project complies with the Attorney General's Recommended Measure to "Install solar and wind power systems, solar and tankless hot water heaters, and energy-efficient heating ventilation and air conditioning." Therefore, the proposed Project would be compliant with the Attorney General's Recommended Measure regarding renewable energy. Because the proposed Project would result in a net reduction in GHG emissions, no mitigation would be required.

Midway Substation Upgrades

As described above in Impact 4.8-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the PG&E owned Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the

proposed PV solar facilities with the Midway Substation. In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the point-of-interconnection for the proposed Project. The development and use of the Midway Substation upgrades would be consistent with the goals, measures, and strategies contained in plans, policies, and regulations adopted for the purpose of reducing GHG emissions. Unlike other components of the proposed Project, the Midway Substation upgrades would not result in the conversion of agricultural lands.

Summary

The proposed Project would be consistent with the majority of the goals, measures, and strategies contained in plans, policies, and regulations adopted for the purpose of reducing GHG emissions, except for a CARB Scoping Plan Measure related to loss or conversion of natural and working lands. Much of the Project site is active agricultural land and implementation of the proposed Project would result in conversion of that land. However, the conversion of agricultural land would support state and local renewable energy goals, produce reliable electricity, and promote economic and energy resiliency. Furthermore, if the proposed Project is decommissioned, the properties could resume agricultural production, as the proposed Project does not include a change in land use, zone change, development, or other request that could permanently prevent the reestablishment of agricultural activities on the Project site.

As discussed above in Section 4.8.3, *Regulatory Setting, State, CARB Climate Change Scoping Plan*, a project is considered consistent with the Scoping Plan if it meets the general policies in reducing GHG emissions to facilitate the achievement of the state's goals and does not impede attainment of those goals. A project need not be in perfect conformity with each and every planning policy or goal to be consistent. Therefore, the proposed Project would be consistent with the Scoping Plan.

Overall, the proposed Project would be consistent with the CARB 2022 Scoping Plan, 2022 RTP/SCS, and KCGP, which all promote economic growth while achieving greater energy efficiency. The proposed Project would also be consistent with Kern COG's 2022 RTP/SCS, SB 32, and EO S-3-05 by being consistent with GHG reduction strategies and policies, increasing the use of alternative-fueled vehicles, and implementing energy efficiency strategies. The proposed Project would not conflict with any plans adopted with the purpose of reducing GHG emissions. Therefore, the proposed Project would have less than significant impacts regarding conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Less than significant.

4.8.5 Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

As described above, emissions of GHGs and their contribution to global climate change are considered a cumulative impact by definition. A broad geographic scope of analysis is appropriate because climate change is influenced by global emissions and their associated effects. Therefore, the geographic extent of the project's cumulative area of impact would be worldwide.

The adopted *CEQA Guidelines* provide regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and global climate change impacts. Although the project is expected to emit GHGs, the emission of GHGs by a single project into the atmosphere is not itself necessarily an adverse environmental effect. Rather it is the accumulation of GHGs from many sources in the atmosphere that may result in global climate change and the resultant consequences of that climate change that can cause adverse environmental effects. A project's GHG emissions would typically be very small in comparison to state or global GHG emissions and, consequently, would have no significant direct impact on climate change in isolation.

The state has mandated a goal of reducing statewide emission to 1990 level by 2020 and reducing statewide emissions to 40 percent below 1990 levels by 2030, even though statewide population and commerce are predicted to continue to expand. In order to achieve this goal, CARB is in the process of establishing and implementing regulations to reduce statewide GHG emissions. Currently, there are no applicable CARB, SJVAPCD, or Kern County significance thresholds or specific reduction targets, and no approved policy or guidance to assist in determining significance at the project or cumulative levels. However, as discussed above, while Kern County has not developed a quantified threshold of significance for GHG emissions, a project found to contribute to a net decrease in GHG emissions and found to be consistent with the adopted implementation of the CARB Climate Change Scoping Plan is presumed to have a less than significant GHG impact.

As shown in **Table 4.8-5:** *Summary of Estimated Annual Operational Greenhouse Gas Emissions*, estimated annual Project-generated GHG emissions would be approximately 9,831 MT CO_2e per year as a result of project operations and amortized construction and decommissioning. Although the proposed Project would result in a contribution to cumulative GHG emissions in California, operation of the proposed Project would displace emissions from the electricity generation sector through generation of renewable energy, which would avoid GHG emissions that otherwise would be generated by fossil-fuel power plants. As described under Impact 4.8-1, the proposed Project would avoid a net 1,117,677 MT CO_2e over its lifetime. Thus, the proposed Project would not have a cumulatively considerable impact on global climate change, and cumulative impacts would therefore be less than significant.

CEQA Guidelines Section 15130 notes that sometimes the only feasible mitigation for cumulative impacts may be to adopt ordinances or regulations rather than impose conditions on a project-by-project basis. Global climate change is this type of issue. GHG impacts are considered to be

exclusively cumulative impacts; there are no noncumulative GHG emission impacts from a climate change perspective (CAPCOA 2008). Causes and effects are not just regional or statewide, they are worldwide. Because the proposed Project's construction and operational GHG emissions would be minimal compared to the amount of emissions avoided through renewable power generation and no mitigation is proposed, any other feasible reductions would be accomplished through CARB regulations adopted pursuant to AB 32 and SB 32.

Midway Substation Upgrades

As described above in Impacts 4.8-1 and 4.8-2, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the PG&E owned Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the point-of-interconnection for the proposed Project. Similar to other components of the proposed Project, Midway Substation upgrades would generate GHG emissions during construction, operations, and decommissioning, primarily from the use of off-road equipment, haul trucks, on-road vendor trucks, and worker vehicles, which would be in addition to GHG emissions from other projects included in the analysis of cumulative impacts. The Midway Substation upgrades would contribute to a portion of the proposed Project's modeled GHG emissions reported in **Table 4.8-1** through **Table 4.8-5** resulting from the construction, operation, and decommissioning activities; however, as stated above, the proposed Project's construction and operational GHG emissions (including, but not limited to, those associated with the Midway Substation upgrades) would be minimal compared to the amount of emissions avoided through renewable power generation that the proposed Project would provide. Finally, the development and use of the Midway Substation upgrades would be consistent with the goals, measures, and strategies contained in plans, policies, and regulations adopted for the purpose of reducing GHG emissions.

Summary

As stated above, although the proposed Project will generate GHG emissions primarily during construction and decommissioning which in combination with GHG emissions from other sources will contribute to climate change, operation of the proposed Project would avoid GHG emissions that otherwise would be generated by fossil-fuel power plants—namely, a net 1,117,677 MT CO_2e over its lifetime. Therefore, the proposed Project would not make a cumulatively considerable contribution to a significant cumulative impact regarding global climate change.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

Section 4.9

Hazards and Hazardous Materials

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Section 4.9
Hazards and Hazardous Materials

4.9.1 Introduction

This section of the Draft Environmental Impact Report (EIR) describes the environmental setting, regulatory setting, and environmental impacts of the proposed Buttonbush Solar and Storage Project (proposed Project) related to hazards and hazardous materials. The following includes (but is not limited to) an analysis of potential impacts to sensitive receptors, and identifies mitigation measures to address significant, adverse impacts. A Phase I Environmental Site Assessment (ESA) (Dudek 2023; Appendix H.2) prepared for the proposed Project, as well as publicly available information from the California Department of Forestry and Fire Protection (CAL FIRE), informed the following analysis.

4.9.2 Environmental Setting

The following describes the existing potential hazards within the Project site to establish a baseline from which impacts associated with the proposed Project can be measured. This section also includes a summary of potentially hazardous materials commonly used in solar facilities and battery energy storage systems. The environmental setting for hazardous materials, air traffic, disease vectors, fire hazards, and the unearthing or exposure of hazardous wastes and contaminated soil or groundwater that have the potential to affect human health are presented below. A complete description of the Project site including the regional location, proposed Project boundary, and surrounding land uses can be found in Chapter 3, *Project Description*, of this Draft EIR.

Hazardous Materials and Waste

A hazardous material is any substance that, because of its quantity, concentration, or physical or chemical properties, may pose a hazard to human health and the environment. Under Title 22 of the California Code of Regulations (CCR), the term "hazardous substance" refers to both hazardous materials and hazardous wastes. Both are classified according to four properties: (1) toxicity; (2) ignitability; (3) corrosiveness; and (4) reactivity (CCR Title 22, Chapter 11, and Article 3). A hazardous material is defined in CCR, Title 22 as:

> *A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed* (CCR, Title 22, Section 66260.10).

Hazardous materials in various forms can cause death, serious injury, long-lasting health effects, and damage to buildings, homes, and other property. Hazards to human health and the environment can occur during production, storage, transportation, use, or disposal of hazardous materials.

The Department of Toxic Substances Control (DTSC) defines hazardous waste as a waste with properties that make it potentially dangerous or harmful to human health or the environment. They can be the by-products of manufacturing processes, discarded used materials, or discarded unused commercial products, such as cleaning fluids (solvents) or pesticides. In regulatory terms, a hazardous waste is a waste that exhibits one of the four characteristics of a hazardous waste: ignitability, corrosivity, reactivity, or toxicity. However, materials can be hazardous waste even if they are not specifically listed or do not exhibit any characteristic of a hazardous waste. For example, "used oil" products, which contain materials on California's M-list (which includes certain wastes known to contain mercury, materials regulated pursuant to the mixture or derived-from rules, and contaminated soil generated from a "clean up") can also be hazardous wastes.

Recognized Environmental Concern (REC) is one of the terms used to identify environmental liability within the context of a Phase I ESA. The term REC means presence or likely presence of any hazardous substances or petroleum products in, on, or at the subject property due to a release, likely release, past release, or material threat of a future release to the environment. The term Controlled Recognized Environmental Condition (CREC) is an environmental condition that would have been considered a REC in the past but that has been remediated and received risk-based closure by a regulatory agency (that is, received a "no further action" letter) where residual contamination remains in place. The term Historical Recognized Environmental Condition (HREC) is an environmental condition that would have been considered a REC in the past but that has been remediated and received unrestricted residential use closure by the regulatory agency.

The Phase I ESA conducted for the Project site did not find evidence of RECs, CRECs, or HRECs associated with the site (Appendix H.2 of this Draft EIR).

Historical Property Use

The majority of the Project site has been used for various agricultural purposes (crops, orchards, grazing, and dairies) as early as 1930, with 294 water wells within 1-mile of the Project site. There are approximately 56 water wells mapped on the property. According to the Phase I ESA (Appendix H.2 of this Draft EIR), Sites 1, 2, 3, and 4 of the Project site consist of agricultural land, including cultivated fields and orchards, with some undeveloped land. Multiple oil wells (plugged, cancelled, and idle) exist on Sites 1, 4, 6, and 8. Site 2 also contains a concrete-lined irrigation canal and residential structures. Sites 5 and 6 consist of mixed-use land, including residential properties, cultivated fields and orchards, Tjaarda Dairy, and a natural gas pipeline station. The Tjaarda Dairy contains several agricultural water wells, a milking facility, several cattle corrals, a feed area, and a pond used to recycle water from the feed corral lanes for the irrigation of feed crops. Site 8 consists of mixed-use land with agriculture, residences, and undeveloped portions of land. Site 8 also contains a small rock quarry, concrete-lined irrigation canal, and agricultural water wells.

There is an active cleanup site approximately 1.5 miles west from the western boundary of Site 5 and 1.6 miles east of the eastern boundary of Site 1. The chemicals of concern associated with pesticides and herbicides, such as organochlorinated compounds and metals, are accumulative and persistent in site soils. Therefore, the longer a property is used for agricultural purposes, the more likely there is an accumulation of these chemicals of concern. Considering the former and present uses of the property, there is a potential for elevated concentrations of pesticide and herbicide-related compounds in surface soils. Additionally, copper sulfate solution was formerly used at Tjaarda Dairy as part of cattle hoof washing activities on APN 088-220-16. The copper sulfate solution has not been used in more than 10 years and is likely below risk-based concentrations; however, its potential presence should be considered.

Hazardous Materials Release Sites in the Area—Cortese List

As part of the Phase I ESA that was prepared for the proposed Project (Appendix H.2 of this Draft EIR), a records search was conducted of government databases compiled pursuant to the State of California Hazardous Waste and Substances Sites (Cortese) List (Government Code Section 65962.5) to identify any government listed hazardous materials or waste sites located on or within a 1-mile radius of the Project site. These government databases include the California Environmental Reporting System, the DTSC 's EnviroStor, the State Water Resources Control Board's (SWRCB) GeoTracker, the California Integrated Water Quality System, and the Federal Toxics Release Inventory. This database search included sites that did not necessarily contain contaminated soil or groundwater but were identified in federal or state databases for compliance with or enforcement of environmental regulations.

A database search was conducted as part of the Phase I ESA that was prepared for the proposed Project (Appendix H.2 of this Draft EIR). According to the Phase I ESA, 15 unique addresses/sites were identified in multiple databases and were mapped within a 1-mile radius of the Project site. Six facilities within the Project site are included on an environmental regulatory database for hazardous materials sites pursuant to Government Code Section 65962.5. A summary of those determined to be notable is provided below:

- Tjaarda Dairy within the southwestern portion of Site 6 was noted to have several violations. For all violations, the site was noted to return to compliance within 180 days of the posted violations. Thus, it is unlikely that this site impacted the environmental conditions of the subject property.
- Midway Substation immediately south of Site 1 was reported to have had a release of oil and water (100 gallons) in 2021. The release was due to a contractor cutting an old pipe. The release was contained and cleaned up. Based on the status of the release (cleaned up) and absence of violations, it is unlikely that this site has impacted the environmental conditions of the subject property.

Additionally, multiple sites were identified as adjoining the Project site in the Phase I ESA. A summary of those determined to be notable is provided below:

- Buttonwillow Sanitary Landfill adjoining to the east of Site 1 is a closed municipal solid waste landfill. According to documents reviewed on GeoTracker, the groundwater flow direction was toward the southeast when measured in 2022. Several of the wells downgradient of the landfill were reported as dry after 2013, but no volatile organic compounds were detected in the groundwater samples collected prior to the drying event. Based on the non-detect analytical results between the landfill and the subject property, it is unlikely that this site impacted the environmental conditions of the subject property.
- Buttonwillow Dusters/Buttonwillow Airport adjoining to the south of Site 1 was noted to have had a release of gasoline to soil in 1993 and regulatory closure was granted in 1995. No documents were available on GeoTracker for review. This site was evaluated for improper pesticide storage in 1987, with potential impact to groundwater. Based on the groundwater flow direction (away from the subject property), it is unlikely that this site has impacted the environmental conditions of the subject property.

Transportation of Hazardous Materials

Hazardous materials shipped within Kern County occur via truck or rail. Truck transportation of hazardous materials is commonly utilized for transporting smaller quantities of a product compared to the volume of materials that could be transported by rail. Rail transportation of hazardous materials in the United States is a primary method of moving large quantities of chemicals over long distances.

The Project site is located near I-5, which would provide access to the general vicinity of the proposed Project during the construction and operation phases. I-5 is the largest highway that would provide regional access to the Project site from the north and the south directions. The Project site is also in proximity to Highway 58 to the south and Highway 46 to the north. The transportation of hazardous materials within the State of California is subject to various federal, state, and local regulations. It is illegal to transport explosives or inhalation hazards on any public highway that is not designated for that purpose, unless the use of a highway is required to permit delivery or the loading of such materials (California Vehicle Code [CVC], Sections 31602(b) and 32104(a)). The California Highway Patrol (CHP) designates through routes to be used for the transportation of hazardous materials. Information on CHP requirements and regulatory authority is provided in Section 4.9.3, *Regulatory Setting*, below.

Airports

The nearest public airports are the Elk Hills – Buttonwillow Airport, located in Buttonwillow, California, approximately 3.5 miles (at the closest point) south of the Project site, and the Wasco-Kern County Airport located at 14101 Airport Rd, Wasco, CA 93280, California 93263, approximately 7.8 miles (at the closest point) northeast of the proposed Project site. The proposed Project site is not located within any safety or noise contour zones for these airports or within any designated airport land use plan areas.

Fire Hazard Areas

CAL FIRE requires counties within the state 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 services. CAL FIRE is responsible for publishing Fire Hazards Severity Zone (FHSZ) maps for the state. According to the FHSZ map published by CAL FIRE in 2025 the proposed Project is located approximately 7.75 miles southwest of a High FHSZ in a State Responsibility Area (SRA) and is located within a Local Responsibility Area (LRA) (CAL FIRE 2025). A portion of Site 8 is classified as LRA Moderate and the remainder of the Project site is outside of designated FHSZs. Impacts related to wildfire hazards are further discussed in Section 4.18, *Wildfire*, of this Draft EIR.

Schools

The County is served by 46 K-12 school districts (KCSS 2022). The Project site is within the Maple, Wasco Union, Buttonwillow Union, Kern Union, and Rio Bravo-Greeley school district boundaries (Kern County School District n.d.). The closest schools to the Project site are Buttonwillow Elementary School, Maple Elementary School, and Golden Oak Elementary School. Specific distances to the Project site are listed in **Table 4.9-1:** *Active Schools in Proximity to the Project Site*.

Table 4.9-1: Active Schools in Proximity to the Project Site

School Name	Student Population (2023–2024)	District	Distance to Project Site (miles)
Buttonwillow Elementary School	287	Buttonwillow Union Elementary	0.98
Maple Elementary School	285	Maple Elementary	2.35
Golden Oak Elementary	713	Richland Union Elementary	3.47
Richland Junior High	585	Richland Union Elementary	3.68
Redwood Elementary	637	Richland Union Elementary	3.76
Central Valley High (Continuation)	95	Kern High	4.53
Sequoia Elementary	588	Richland Union Elementary	4.67
Semitropic Elementary School	142	Semitropic Elementary	4.81
Teresa Burke Elementary	529	Wasco Union Elementary	6.39
Wasco Independence High	113	Wasco Union High	6.71
Wasco High	1,693	Wasco Union High	6.90
Palm Avenue Middle	632	Wasco Union Elementary	7.10
Karl F. Clemens Elementary	527	Wasco Union Elementary	7.20
Thomas Jefferson Middle	589	Wasco Union Elementary	7.24
John L. Prueitt Elementary School	617	Wasco Union Elementary	7.27

Source: California Department of Education 2024

Disease Vectors

A disease vector is an insect or animal that carries a disease-producing micro-organism from one host to another. The Federal Insecticide, Fungicide and Rodenticide Act (7 United States Code [USC] Section 136 et seq.) defines the term vector as "…any organism capable of transmitting the causative agent of human disease or capable of producing human discomfort or injury, including mosquitoes, flies, fleas, cockroaches, or other insects and ticks, mites or rats."

The accumulation of organic wastes can attract various vectors. In addition, any depressed areas, ponds, or drainage channels provide areas for the breeding of mosquitoes.

Mosquitoes

Mosquitoes are of particular concern because of their abundance and distribution. Mosquitoes require standing water to breed and can be prolific in areas with standing water, such as wetlands.

Detections of West Nile virus mosquitoes are recorded throughout Kern County, such as in Bakersfield, Shafter, and Buttonwillow (VectorSurv Maps 2025).

Adult female mosquitoes can deposit eggs in a variety of aquatic habitats and other sources that contain water. The immature stages of each mosquito species develop in particular habitats. In general, there are four mosquito habitat groups: agricultural, industrial, domestic, and natural sources. Typical sites within these habitat groups include:

- Agricultural Sources: irrigated pastures, dairies, and orchards.
- Industrial Sources: sewage treatment ponds and drain ditches.
- Domestic Sources: containers, debris in and around ponds, bird baths, pet watering dishes, animal troughs, septic tanks, catch basins, roadside ditches, leaky sprinkler systems, and stagnant swimming pools.
- Natural Sources: wetlands, floodplains, and rain pools.

All species of mosquitoes require standing water to complete their growth cycle. Therefore, any standing body of water represents a potential mosquito breeding habitat. Although mosquitoes typically stay close to suitable breeding habitat and blood-meal hosts, they are known to travel up to 10 miles under breezy conditions. The breeding period for mosquitoes depends on temperature but generally occurs in March through October. In Kern County, mosquitoes are most abundant and active between May and October.

Water quality also affects mosquito reproduction. Generally, poor-quality water (for example, water with limited circulation, high temperature, and high organic content) produces greater numbers of mosquitoes than high-quality water (for example, water with high circulation, low temperature, and low organic content). Typically, water bodies with water levels that slowly increase or recede produce greater numbers of mosquitoes than water bodies with water levels that are stable or that rapidly fluctuate.

In Kern County, the Kern Mosquito and Vector Control District is responsible for vector control, and the proposed Project would be serviced by this district.

Mosquito-Borne Diseases

Mosquitoes are known to be the carriers of many serious diseases.

West Nile virus is the most important mosquito-borne disease affecting Kern County. In 2024, there were 151 human West Nile virus infections in California and 12 deaths (CDPH 2024). Of these cases, 12 (7.9 percent) were in Kern County.

In September 2002, the Kern County Department of Health formed a West Nile Virus Task Force and has subsequently released reports documenting cases, developed strategies to prevent the occurrence of West Nile virus, and generated public education information, such as information pamphlets. Statewide, there are 52 local agencies, including local mosquito abatement districts and the California Department of Health Services Arbovirus Field Testing Stations, which work

cooperatively to routinely conduct surveillance and control of mosquitoes and the diseases they transmit throughout California.

Mosquito Species of Concern

In Kern County, two species of mosquito are primary targets for suppression. These two species, *Culex pipiens quinquefasciatus* and *Culex tarsalis*, are potential vectors of encephalitis and West Nile virus. A total of 26 species of mosquitoes exist in Kern County that can cause a substantial nuisance in surrounding communities, but the members of the *Culex* genus are the primary vector species of concern.

Although West Nile virus can be transmitted by a number of mosquito species, *Culex* is the most common carrier. This disease is thought to be a seasonal epidemic that flares up in the summer and fall. West Nile virus is spread when mosquitoes that feed on infected birds bite humans and other animals.

The encephalitis mosquito (*Culex tarsalis*) breeds in almost any freshwater pond. Birds appear to be the primary blood-meal hosts of this species, but the insect will also feed on domestic animals and humans (Bohart and Washino 1978). This species is the primary carrier in California of western equine encephalitis, St. Louis encephalitis, and California encephalitis, and is considered a significant disease vector of concern in the state.

The house mosquito (*Culex pipiens quinquefasciatus*) usually breeds in waters with a high organic material content. This species is often identified by its characteristic buzzing. Although its primary blood-meal host is birds, the house mosquito may also seek out humans. The house mosquito is a vector of St. Louis encephalitis.

Flies

Nuisance flies have a life cycle comprised of an egg stage, a larval stage, a pupal stage, and an adult stage. Eggs are laid by a mature female fly onto a substrate appropriate for larval development. A single female can lay hundreds of eggs during her life. Nuisance fly larvae (grubs) are generally white in color and are blunt ended. They develop in wet substrates, especially dung pats and manure and wet or rotting feed, hay, and bedding straw, where they feed on food particles found on the substrate. Fly larvae are not capable of developing in truly aqueous habitats; they need wet, but not overly wet, substrates.

Within the confines of a pupal case, the developing fly will undergo further changes to become a winged adult fly that will eventually emerge from the pupal case and disperse from the site. The length of time required to complete the development from egg to adult is temperature dependent and may be as short as seven days during the summer months in California.

Some nuisance flies are blood feeders and can inflict a painful bite while feeding on animals or humans. Blood feeding (or biting) flies include the stable fly and horn fly. Other flies do not bite (non-biting flies), instead feeding on body secretions or liquefied organic matter. Non-biting flies include the house fly, face fly, and garbage fly.

Adult flies are generally active during daylight hours and inactive at night. Nuisance flies are known to disperse from their development sites into surrounding areas; however, the distance and direction of dispersal are not well understood. Non-biting nuisance fly species are likely to disperse further than those fly species that require animal blood meals. The habitat surrounding a breeding site will play a role in the distance of nuisance fly dispersal. Nuisance flies will likely disperse further in open habitats typical of rangeland and low agricultural crops than they will in urban or forested/orchard areas that contain substantially more vertical structure on which flies may rest and that provide shade and higher humidity on hot summer days.

Most nuisance flies are not known to disperse great distances. Studies using marked house flies show that 60 percent to 80 percent of house flies were captured within 1 mile of their release point; 85 percent to 95 percent were caught within 2 miles of the release site within the first four days after they were turned loose (University of Kentucky 1997). A few flies have been shown to travel further, but in general, fly control efforts for a community problem are focused within 1 mile of the source.

Rodents

The accumulation of organic waste presents the potential for significant populations of mice and rats. Rodents can spread or accelerate the spread of disease from contaminated areas to uncontaminated areas via their droppings, feet, fur, urine, saliva, or blood. Rodents can transmit the Hantavirus which spreads through urine, droppings, and saliva of rodents, specifically deer mice. However, the spread is not common and from 1980 to 2024, there have been 79 cases of Hantavirus in California, with four of those cases occurring in Kern County (KCPH n.d.). In addition, mice provide a food source that could attract wild predatory animals (for example, skunks, foxes, coyotes, and stray dogs), which could pose other disease problems.

Mice are generally nocturnal and secretive animals with keen senses of taste, hearing, smell, and touch. They are small enough to enter any opening larger than one quarter of an inch. Mice prefer cereal grains, if available, but will eat garbage, insects, meat, and even manure. Mice reproduce at high rates, making early control important in minimizing the potential for infestation. Although the life span of a mouse is only nine to 12 months, a female mouse can have five to 10 litters per year with five or six young in each litter. Mice do not consume large quantities of food but can cause significant economic damage due to physical structure damage and site contamination.

Hazardous Materials Used in Solar Facilities and Battery Energy Storage Systems

Photovoltaic Solar Panels and Cadmium Telluride

The photovoltaic (PV) solar panels that would be installed on the Project site would be selected from those commercially available and thus are most likely made from either polycrystalline silicon or cadmium telluride (CdTe) thin film technology. The CdTe compound is encapsulated in the PV module with the PV module containing less than 0.1 percent Cd content by weight. Because of optimal optical properties, only a 3-micron-thin layer of CdTe is used to absorb incident

sunlight, with Cd content per 8 square feet of PV module less than that of one C-size flashlight NiCd battery. At present, CdTe is the leading domestically fabricated PV technology (by volume) and plays a key role in the expansion of PV deployment and employment in the United States. In 2022, CdTe technology commanded about 34% of the U.S. utility-scale PV market and about 3% of the world PV market, and 2023 data indicates flat CdTe module shipments year over year. Effectively all CdTe modules are currently used in utility-scale PV systems (DOE 2024).

During the PV module manufacturing process, CdTe is bound under high temperature to a sheet of glass by vapor transport deposition, coated with an industrial laminate material, insulated with solar edge tape, and covered with a second sheet of glass. The module design results in the encapsulation of the semiconductor material between two sheets of glass thereby preventing the exposure of CdTe to the environment. Additionally, CdTe releases are also unlikely to occur during accidental breakage or fire due to the high chemical and thermal stability of CdTe (Fthenakis 2003). Disposal risks of end-of-life CdTe PV modules are minimized because of the low solubility of CdTe and because the modules can be effectively recycled at the end of their approximately 30-year life.

Environmental risks of both crystalline silicon and thin film CdTe PV technologies have been evaluated by the International Energy Agency, using the U. S. Environmental Protection Agency (EPA) fate and transport methods for potential emissions to air, water, and soil from non-routine events such as fire and field breakage. Based on comparisons with EPA health screening levels, crystalline silicon and thin film CdTe PV technologies do not present a health risk in the event of fire or breakage regarding their use of lead and cadmium compounds, respectively (Sinha et al. 2018, 2019).

The modules must meet minimum performance testing standards demonstrating durability in a variety of environmental conditions. The PV modules with CdTe thin film technology conform to the International Electrotechnical Commission (IEC) test standards IEC 61646 and IEC61730 PV as tested by a third-party testing laboratory certified by the IEC. In addition, the PV modules also conform to Underwriters Laboratory (UL) 1703 that is a standard established by the independent product safety certification organization. In accordance with UL 1703, the PV modules undergo rigorous accelerated life testing under a variety of conditions to demonstrate safe construction, and performance monitoring.

Electromagnetic Fields

Electric voltage and electric current from transmission lines create electromagnetic fields (EMFs). Possible health effects associated with exposure to EMFs have been the subject of scientific investigation since the 1970s, and there continues to be public concern about the health effects of EMF exposure. However, EMF is not addressed here as an environmental impact under the California Environmental Quality Act (CEQA). EMF has repeatedly been recognized a non-environmental impact to be analyzed in the context of CEQA because (1) there is no agreement among scientists that EMF creates a potential health risk and (2) there are no defined or adopted CEQA standards for defining health risks from EMF (PG&E 2002).

Increase in Ambient Temperatures

The "urban heat island" effect is referred to when urbanized areas experience higher temperatures when compared to other less developed areas. This occurs when development covers substantial areas of land consisting of structures (for example, concrete buildings and asphalt roads) that absorb and store significantly more heat during the day than undeveloped areas. This is due to a combination of factors including the replacement of native soils with energy-consuming devices (for example, engines, appliances, and heating, air-conditioning, and ventilation [HVAC] systems) that generate waste heat. A PV "heat island" effect then, refers to the phenomenon where temperatures in and around PV solar facilities increase from the ambient temperature due to replacement of native land cover with solar panels that absorb heat.

4.9.3 Regulatory Setting

Federal

United States Environmental Protection Agency

The EPA was established in 1970 to consolidate in one agency a variety of federal research, monitoring, standard-setting, and enforcement activities to ensure environmental protection. The EPA's mission is to protect human health and safeguard the natural environment - air, water, and land - upon which life depends. The EPA works to develop and enforce regulations that implement environmental laws enacted by Congress, is responsible for researching and setting national standards for a variety of environmental programs, and delegates to states and tribes the responsibility for issuing permits and for monitoring and enforcing compliance. Where national standards are not met, the EPA can issue sanctions and take other steps to assist the states and tribes in reaching the desired levels of environmental quality.

Federal Toxic Substances Control Act/Resource Conservation and Recovery Act/Hazardous and Solid Waste Act

The Federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program administered by the EPA to regulate the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the "cradle-to-grave" system of regulating hazardous wastes.

Comprehensive Environmental Response, Compensation, and Liability Act/Superfund Amendments and Reauthorization Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law (USC Title 42, Chapter 103) provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA establishes requirements concerning closed and abandoned hazardous waste sites; provides for

liability of persons responsible for releases of hazardous waste at these sites; and establishes a trust fund to provide for cleanup when no responsible party can be identified. CERCLA also revised the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The NCP (40 Code of Federal Regulations [CFR], Part 300) provides the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants, and/or contaminants. The NCP also established the National Priorities List. CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

Emergency Planning and Community Right-to-Know Act

Under the Emergency Planning and Community Right-to-Know Act, or Title III of the SARA, the EPA requires local agencies to regulate the storage and handling of hazardous materials and requires development of a plan to mitigate the release of hazardous materials. Businesses that handle any of the specified hazardous materials must submit an inventory of the hazardous materials, emergency response plan, and employee training program, to government agencies (that is., fire departments or public health departments). The business plans must provide a description of the types of hazardous materials/waste on-site and the location of these materials. The information in the business plan can then be used in the event of an emergency to determine the appropriate response action, the need for public notification, and the need for evacuation.

In 1990, Congress passed the Pollution Prevention Act which requires facilities to report additional data on waste management and source reduction activities to the EPA under the Toxics Release Inventory Program. The goal of the Toxics Release Inventory is to provide communities with information about toxic chemical releases and waste management activities and inform industry, government, non-governmental organizations, and the public regarding decision-making.

Clean Water Act/Spill, Prevention, Control, and Countermeasure Rule

The Clean Water Act (CWA) (33 USC Section 1251 et seq.) was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA requires states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain non-point source discharges to surface water. The National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402) regulates discharges to waters of the United States. In California, NPDES permitting authority is delegated to, and administered by, the nine Regional Water Quality Control Boards (RWQCBs). The Project site is located within the jurisdiction of the Central Valley RWQCB. CWA Section 402 authorizes the California SWRCB to issue NPDES Construction Stormwater General Permits referred to as "Construction General Permits." Projects that disturb one or more acres are required to obtain NPDES coverage under the Construction General Permits. Construction activities can comply with and be covered under a Construction General Permit provided that they:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies best management practices (BMPs) that will prevent all construction pollutants from contacting stormwater and with the intent of keeping all products of erosion from moving off-site into receiving waters.

- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the nation.
- Perform inspections of all BMPs.

Other federal regulations overseen by the EPA relevant to hazardous materials and environmental contamination include 40 CFR Chapter 1, Subchapter D – Water Programs and Subchapter I – Solid Wastes. 40 CFR Chapter 1, Subchapter D, Parts 116 and 117 designate hazardous substances under the CWA. 40 CFR Part 116 sets forth a determination of the reportable quantity for each substance that is designated as hazardous. 40 CFR Part 117 applies to quantities of designated substances equal to or greater than the reportable quantities that may be discharged into waters of the United States.

Safe Drinking Water Act of 1974

The Safe Drinking Water Act (SDWA) (42 USC Section 300f et seq.) regulates the amount of toxic substances in drinking water sources. The SDWA requires the EPA to develop minimum federal requirements for Underground Injection Control (UIC) programs and other safeguards to protect public health by preventing injection wells from contaminating an underground source of drinking water (USDW). The UIC sections are:

1421—Identifies what state regulations must include in their UIC Program.

1422—Outlines the process for state primacy applications including timelines and public participation requirements.

1423—Sets forth enforcement of the program.

1425—Describes optional demonstrations a state may make for the portion of the UIC Program relating to oil and natural gas operations.

1426—Requires the administrator to determine the applicability of monitoring methods.

1431—Authorizes emergency powers that the EPA may implement in a state if there is imminent and substantial endangerment.

1442—Addresses the EPA's authority to conduct research, studies, training, and demonstrations, specifically looking at improved methods for protecting USDWs.

1443—Establishes grants for primacy programs.

The EPA developed the UIC Program requirements, but states, territories, and tribes can obtain primary enforcement responsibility, or primacy. State regulations must be at least as stringent as federal requirements.

Hazardous Materials Transportation Act

The Hazardous Materials Transportation Act (HMTA) (P.L. 93-933, January 1975) is the federal legislation that regulates transportation of hazardous materials. The primary regulatory authorities are the U. S. Department of Transportation (USDOT), Federal Highway Administration, and Federal Railroad Administration. The Secretary of the USDOT has authority to regulate the transportation of hazardous materials pursuant to the HMTA, as amended and codified in 49 USC 5101 et seq. The Pipeline and Hazardous Materials Safety Administration (PHMSA) (formerly the Research and Special Provisions Administration) was delegated the responsibility to write the hazardous materials regulations, which are contained in 49 CFR Parts 100-180. The HMTA requires that carriers report accidental releases of hazardous materials to the USDOT at the earliest practical moment but no later than 12 hours after the occurrence of any incident (49 CFR Subtitle B, Chapter 1, Subchapter C, Part 171.15 Subpart B). Other incidents that must be reported include deaths, injuries requiring hospitalization, and property damage exceeding $50,000.

Under the HMTA, the USDOT regulates the transportation and handling of "reportable quantities" of hazardous substances. These regulations focus on the transportation of hazardous materials by:

- Carriers by rail, aircraft, and vessel
- Interstate and foreign carriers by motor vehicle
- Intrastate carriers by motor vehicle so far as the regulations relate to hazardous wastes, hazardous substances, and flammable cryogenic liquids in portable tanks and cargo tanks

The transportation of hazardous materials within the State of California is subject to various federal, state, and local regulations. It is illegal to transport explosives or inhalation hazards on any public highway not designated for that purpose, unless the use of the highway is required to permit delivery or the loading of such materials (CVC, Sections 31602[b] and 32104[a]).

The CHP designates through routes to be used for the transportation of hazardous materials. Transportation of hazardous materials is restricted to these routes except in cases where additional travel is required from that route to deliver or receive hazardous materials to and from users. Information on CHP requirements and regulatory authority is provided below.

Occupational Safety and Health Act

Under the authority of the Occupational Safety and Health Act of 1970 (29 USC Sections 651-678), the Occupational Safety and Health Administration (OSHA), a division of the Department of Labor, established health and safety standards for the workplace, including the accidents and occupational injuries reporting requirements. Relevant regulations include those related to hazardous materials handling, employee protection requirements, first aid, and fire protection, as well as material handling and storage. Relevant portions are summarized below.

Federal Aviation Administration

The Federal Aviation Administration (FAA) regulates aviation at regional, public, private, and military airports. The FAA regulates objects affecting navigable airspace and structures taller than 200 feet according to Federal Aviation Regulation 14 CFR Part 77. The USDOT and California Departments of Transportation (Caltrans) also require the proponent to submit FAA Form 7460-1, Notice of Proposed Construction or Alteration. According to 14 CFR Part 77.5, notification allows the FAA to identify potential aeronautical hazards in advance, thus preventing or minimizing any adverse impacts on the safe and efficient use of navigable airspace. Any structure that would constitute a hazard to air navigation, as defined in 14 CFR Part 77, requires issuance of a permit from Caltrans's Aeronautics Program. The permit is not required if the FAA aeronautical study determines that the structure has no impact on air navigation.

Other Regulations

Other federal regulations overseen by the EPA relevant to hazardous materials and environmental contamination include 40 CFR Parts 100 to 149–Water Programs,40 CFR Parts 239 to 259–Solid Wastes, and 40 CFR Parts 260 to 279–Hazardous Waste. These regulations: designate hazardous substances under the CWA; determine the reportable quantity for each substance that is designated as hazardous; and establish quantities of designated substances equal to or greater than the reportable quantities that may be discharged into waters of the United States.

Since 2005, the end-of-life CdTe PV modules are currently characterized as federal non-hazardous waste, and as a California-only hazardous waste. CdTe PV modules are an article of commerce and are not classified as a hazardous material for shipping purposes under either federal or state law.

State

California Department of Conservation, Geologic Energy Management Division

The California Department of Conservation, Geologic Energy Management Division (CalGEM), formerly the Department of Oil, Gas, and Geothermal Resources, is the state agency responsible for supervising the drilling, operation, maintenance, plugging, and abandonment of oil, gas, and geothermal wells. CalGEM's regulatory program promotes the sensitive development of oil, natural gas, and geothermal resources in California through sound engineering practices, pollution prevention, and the implementation of public safety programs. CalGEM requires any construction above or near plugged or abandoned oil and gas wells to be avoided, and remediation of wells to meet current CalGEM standards, including wells discovered during excavation or grading.

California Building Code

Section 608 of the California Building Code includes requirements for battery energy storage systems greater than 20 kilowatt-hour, which includes the proposed energy storage facilities. Section 608 includes requirements for vehicle impact protection, location, spacing between batteries, egress, security, and fire suppression systems.

California Public Utilities Commission

Electric and Magnetic Fields

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 California EMF 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 California EMF Consensus Group, written testimony, and evidentiary hearings, CPUC's decision (93-11-013) was issued on November 2, 1993, to address public concern about possible EMF health effects from electric utility facilities.

In August 2004 the CPUC began a proceeding known as a "rulemaking" (R.04-08-020) to explore whether changes should be made to existing CPUC policies and rules concerning EMF from electric transmission lines and other utility facilities. Through a series of hearings and conferences, the Commission evaluated the results of its existing EMF mitigation policies and addressed possible improvements in implementation of these policies. The CPUC also explored whether new policies are warranted considering recent scientific findings on the possible health effects of EMF exposure.

The CPUC completed the EMF rulemaking in January 2006 and presented these conclusions in Decision D.06-01-042:

- The CPUC affirmed its existing policy of requiring no-cost and low-cost mitigation measures to reduce EMF levels from new utility transmission lines and substation projects.
- The CPUC adopted rules and policies to improve utility design guidelines for reducing EMF, and provides for a utility workshop to implement these policies and standardize design guidelines.
- Despite numerous studies, including one ordered by the CPUC and conducted by the California Department of Health Services, the CPUC stated "we are unable to determine whether there is a significant scientifically verifiable relationship between EMF exposure and negative health consequences."
- The CPUC said it will "remain vigilant" regarding new scientific studies on EMF, and if these studies indicate negative EMF health impacts, the CPUC will reconsider its EMF policies and open a new rulemaking if necessary.

This continues to be the stance of the CPUC regarding standards for EMF exposure. Currently, the State has not adopted any specific limits or regulations regarding EMF levels from electric power facilities. At present, CPUC does not consider EMF, in the context of CEQA, to be an environmental impact because there is no agreement among scientists that EMF creates a potential health risk and because CEQA does not define, and has not adopted standards for defining, any

potential risk from EMF (CPUC Therefore, EMF is not addressed as part of the impact analysis in this Draft EIR).

General Order 95: Rules for Overhead Electric Line Construction

CPUC General Order 95 (GO 95) is the key standard governing the design, construction, operation, and maintenance of overhead electric lines by regulated utilities within the State of California. It was adopted in 1941 and updated most recently in 2012. GO 95 includes safety standards for overhead electric lines, including minimum distances for conductor spacing, minimum conductor ground clearance, and standards for calculating maximum sag, electric line inspection requirements, and vegetation clearance requirements. Rule 35 that governs the vegetation clearance requirements, and Rule 31.2 that governs inspection requirements, are summarized below:

- GO 95: Rule 35, Tree Trimming, defines minimum vegetation clearances around power lines. Rule 35 guidelines require 10-foot radial clearances for any conductor of a line operating at 110 kilovolt (kV) or more, but at less than 300 kV. This requirement would apply to the proposed 230 kV lines.
- GO 95: Rule 31.2, Inspection of Lines, requires that lines be inspected frequently and thoroughly for the purpose of ensuring that they are in good condition, and that lines temporarily out of service be inspected and maintained in such condition so as not to create a hazard.

Power Line Clearance Required

Public Resources Code (PRC) Section 4293 provides guidelines for line clearance, including a minimum of 10 feet of vegetation clearance around any conductor operating at 110 kV or higher.

Power Line Hazard Reduction

PRC Section 4292 requires a 10-foot clearance around any tree branches or ground vegetation at the base of power poles carrying more than 110 kV. The firebreak clearances required by PRC Section 4292 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer, or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is exempt from minimum clearance requirements by provisions of PRC Section 4296.

Minimum Clearance Provisions

With respect to minimum clearance requirements, 14 CCR Section 1254 presents guidelines pertaining to nonexempt utility poles. The proposed Project's structures would be exempt from the clearance requirements, with the exception of cable poles and dead-end structures.

The firebreak clearances required by 14 CCR Section 1254 are applicable within an imaginary cylindrical space surrounding each pole or tower on which a switch, fuse, transformer, or lightning arrester is attached and surrounding each dead-end or corner pole, unless such pole or tower is

exempt from the minimum clearance requirements by the provisions of 14 CCR Section 1255 or PRC Section 4296. The radius of the cylindroid is 10 feet, which is measured horizontally from the outer circumference of the specified pole or tower, with the height equal to the distance from the intersection of the imaginary vertical exterior surface of the cylindroid to an intersection with a horizontal plane passing through the highest point at which a conductor is attached to such pole or tower. Flammable vegetation and materials located wholly or partially within the firebreak space would be treated as follows:

- At ground level: Remove flammable materials, including ground litter, duff, and dead or desiccated vegetation that would propagate fire.
- From 0 to 8 feet above ground level: Remove flammable trash, debris, or other materials, grass, and herbaceous and brush vegetation. Remove all limbs and foliage of living trees up to a height of 8 feet.
- From 8 feet to the horizontal plane of highest point of the conductor attachment: Remove dead, diseased, or dying limbs and foliage from living sound trees and any dead, diseased, or dying trees in their entirety.

Hazardous Materials and Hazardous Waste

Whether a material is deemed a hazardous material and/or a hazardous waste will determine which state regulation applies to it. According to Health and Safety Code (HSC) Section 25124, materials become waste when the material is disposed, burned, or incinerated, or accumulated, stored or treated before or in lieu of being disposed, burned, or incinerated. Recyclable materials that are managed pursuant to HSC Sections 25143.2 and 25143.9 are excluded from classification as waste. A hazardous waste is a waste that because of its quantity, concentration, or physical, chemical, or infectious characteristics may either:

- Cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness.
- Pose a substantial present or potential hazard to human health or the environment, due to factors including, but not limited to, carcinogenicity, acute toxicity, chronic toxicity, bioaccumulative properties, or persistence in the environment, when improperly treated, stored, transported, disposed, or otherwise managed (HSC Section 25117; 25141).

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Material Release Response Plans and Inventory Act (HSC, Division 20, Chapter 6.95, Sections 25500-25547.8) also known as the Business Plan Act, requires businesses using hazardous materials to prepare a plan that describes their facilities, inventories, emergency response plans, and training programs. Hazardous materials are defined as raw or unused materials that are hazardous and are part of a process or manufacturing step. Specifically, the California HSC Sections 25503 and 25505 require facilities that store hazardous materials exceeding 55 gallons, 500 pounds, or 200 cubic feet to submit Hazardous Materials Business Plans (HMBPs) to the

Certified Unified Program Agency (CUPA). This plan must include a hazardous materials inventory and address emergency response, planning, training, and evacuation.

Hazardous Waste Control Act of 1972

The Hazardous Waste Control Act (HSC Division 20, Chapter 6.5) established the state hazardous waste management program, which is similar to, but more stringent than RCRA program requirements. This law defines hazardous wastes and the procedures for the handling, transportation, and disposal of hazardous waste. The implementing regulations prescribe management practices for hazardous wastes; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed in landfills. Hazardous waste is tracked from the point of generation to the point of disposal or treatment using hazardous waste manifests. The manifests list a description of the waste, its intended destination, and regulatory information about the waste. The hazardous waste control program is administered by the state DTSC and by local CUPAs.

22CCR Division 4.5, Environmental Health Standards for Management of Hazardous Waste, provides the regulatory requirements for the implementation of the Hazardous Waste Control Act. Chapter 11 defines a waste as hazardous if it has any of the following characteristics: ignitability, corrosivity, reactivity, and toxicity. Article 3 provides detailed definitions of each characteristic. Articles 4 and 5 provide lists of RCRA hazardous wastes, non-RCRA hazardous wastes, hazardous wastes from specific sources, extremely hazardous wastes, hazardous wastes of concern, and special wastes. Chapters 12, 13, and 14 provide the standards for hazardous waste generators and transporters as well as for the owners of transfer, treatment, storage, and disposal facilities.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program)

Senate Bill 1082 of 1993 (HSC Chapter 6.11) required the Secretary of the California Environmental Protection Agency (CalEPA) to establish a "unified hazardous waste and hazardous materials management" regulatory program (Unified Program) by January 1, 1996. Currently, there are 81 CUPAs, also known as participating agencies, in California. All counties have been certified by the Secretary. The Unified Program consolidates, coordinates, and makes consistent six existing programs.

The Unified Program provides for local implementation of the following six state and federal regulatory programs:

- The Aboveground Storage Tank program (and its Spill, Prevention, Control, and Countermeasures [SPCCs])
- The Hazardous Materials Release Response Plan and Inventory Program (Business Plan)
- The California Accidental Release Prevention Program (CalARP)
- The California Uniform Fire Code (UFC), Hazardous Materials Management Plan (HMMP), and Hazardous Materials Inventory Statement (HMIS)

- The Underground Storage Tank (UST) program
- The Hazardous Waste Generator and Onsite Hazardous Waste Treatment program (tiered permitting)

The Unified Program is intended to provide relief to businesses in complying with the overlapping and sometimes conflicting requirements of formerly independently managed programs. The Unified Program is implemented at the local government level by CUPAs. Most CUPAs have been established as a function of a local environmental health or fire department. Some CUPAs have contractual agreements with another local agency, a participating agency, which implements one or more Program Elements in coordination with the CUPA. The CUPA in Kern County is the Environmental Health Services Division of the Kern County Public Health Services Department

California Code of Regulations—Hazardous Substances

Under 22 CCR, the term "hazardous substance" refers to both hazardous materials and hazardous wastes. Both are classified according to four properties: (1) toxicity; (2) ignitability; (3) corrosiveness; and (4) reactivity (22 CCR 11, Article 3). A hazardous material is defined as:

> *A substance or combination of substances which, because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed* (22 CCR 66260.10).

8 CCR Chapter 3.2, Article 5, Section 339 includes a list of identified hazardous substances. Hazardous materials in various forms can cause death; serious injury; long-lasting health effects; and damage to buildings, homes, and other property (Old Lyme 2025).

California Environmental Protection Agency

The CalEPA was created in 1991, which unified California's environmental authority in a single cabinet-level agency and brought the California Air Resources Board, SWRCB, RWQCBs, California Department of Resources Recycling and Recovery (formerly the Integrated Waste Management Board), DTSC, Office of Environmental Health Hazard Assessment (OEHHA), and Department of Pesticide Regulation under one agency. These agencies were placed within the CalEPA "umbrella" for the protection of human health and the environment and to ensure the coordinated deployment of state resources. Their mission is to restore, protect, and enhance the environment, to ensure public health, environmental quality, and economic vitality.

Department of Toxic Substances Control

DTSC is a department of CalEPA and is the primary agency in California that regulates hazardous waste, cleans-up existing contamination, and seeks ways to reduce the hazardous waste produced in California. DTSC regulates hazardous waste in California primarily under the authority of the federal RCRA and the California HSC (primarily Division 20, Chapters 6.5 through 10.6, and Title

22, Division 4.5). Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

Government Code Section 65962.5 (commonly referred to as the Cortese List) includes DTSC-listed hazardous waste facilities and sites, DHS's lists of contaminated drinking water wells, sites listed by the SWRCB as having UST leaks and which have had a discharge of hazardous wastes or materials into the water or groundwater, and lists from local regulatory agencies of sites that have had a known migration of hazardous waste/material.

Hazardous Waste and Substances Sites (Cortese) List (California Government Code Section 65962.5)

This state code requires the State to compile a hazardous waste and substance list. The Cortese List is a planning document used to comply with the CEQA requirements by providing information about the location of hazardous materials release sites. The CalEPA must update the Cortese List annually.

California Office of Emergency Services

In order to protect the public health and safety and the environment, the California Office of Emergency Services (CalOES) is responsible for establishing and managing statewide standards for business and area plans relating to the handling and release or threatened release of hazardous materials. Basic information on hazardous materials handled, used, stored, or disposed (including location, type, quantity, and the health risks) needs to be available to firefighters, public safety officers, and regulatory agencies. The information needs to be included in business plans to prevent or mitigate the damage to the health and safety of persons and the environment from the release or threatened release of these materials into the workplace and environment. These regulations are set forth in Chapter 6.95 of the California HSC Article 1–Hazardous Materials Release Response and Inventory Program (Sections 25500 to 25520) and Article 2–Hazardous Materials Management (Sections 25531 to 25543.3).

19 CCR, Public Safety, Division 2, Office of Emergency Services, Chapter 4–Hazardous Material Release Reporting, Inventory, and Response Plans, Article 4 (Minimum Standards for Business Plans) establishes minimum statewide standards for HMBPs. These plans include the following: (1) a hazardous material inventory in accordance with Sections 2729.2 to 2729.7; (2) emergency response plans and procedures in accordance with Section 2731; and (3) training program information in accordance with Section 2732. Business plans contain basic information on the location, type, quantity, and health risks of hazardous materials stored, used, or disposed in the state. Each business shall prepare a HMBP if that business uses, handles, or stores a hazardous material or an extremely hazardous material in quantities greater than or equal to the following:

- 500 pounds of a solid substance
- 55 gallons of a liquid
- 200 cubic feet of compressed gas

- A hazardous compressed gas in any amount
- Hazardous waste in any quantity

California Occupational Safety and Health Administration

California Occupational Safety and Health Administration (Cal/OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the workplace. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337-340). The regulations specify requirements for employee training, availability of safety equipment, accident prevention programs, and hazardous substance exposure warnings.

California Highway Patrol

A valid Hazardous Materials Transportation License, issued by the CHP, is required pursuant to the State of CVC Section 3200.5 for transportation of either:

- Hazardous materials shipments for which the display of placards is required by state regulations; or
- Hazardous materials shipments of more than 500 pounds, which would require placards if shipping greater amounts in the same manner.

Additional requirements on the transportation of explosives, inhalation hazards, and radioactive materials are enforced by the CHP under the authority of the State Vehicle Code. Transportation of explosives generally requires consistency with additional rules and regulations for routing, safe stopping distances, and inspection stops (14 CCR, Chapter 6, Article 1, Sections 1150-1152.10). Inhalation hazards face similar, more restrictive rules and regulations (13 CCR, Chapter 6, Article 2.5, Sections 1157-1157.8). Radioactive materials are restricted to specific safe routes for transportation of such materials.

Hazardous Materials Transportation in California

California regulates the transportation of hazardous waste originating or passing through the state pursuant to 13 CCR. The CHP and Caltrans have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies. Caltrans sets standards for trucks in California. The regulations are enforced by the CHP. Common carriers are licensed by the CHP, pursuant to the CVC, Section 32000.5.

Under the RCRA, the EPA sets standards for transporters of hazardous waste. In addition, California regulates the transportation of hazardous waste originating or passing through the state; state regulations are contained in 13 CCR. Hazardous waste must be regularly removed from generating sites by licensed hazardous waste transporters. Transported materials must be accompanied by hazardous waste manifests and spills or discharges must be reported.

Uniform Fire Code—Hazardous Materials Management Plan, Hazardous Materials Inventory Statement

The UFC prescribes regulations that are consistent with best practices to address fire and explosion hazards that can arise from the storage, handling, and use of hazardous substances, materials, and devices. The State Fire Marshal has adopted the UFC, with amendments, as the California Fire Code. Local fire departments are required to adopt local fire codes that are no less stringent than the California Fire Code.

According to UFC Section 8001.3.1, a permittee is required to store, use, or handle hazardous material exceeding specified quantities. A local fire chief may require permit applicants to prepare a HMMP (Section 8001.3.2a) and HMIS (Section 8001.3.3a).

California Accidental Release Prevention

The CalARP program (CCR Section 2745.1, 1997) is designed to minimize the risk of extremely hazardous substances that potentially cause immediate harm to the public and the environment by requiring business owner/operator handling one or more regulated substances over the state and/or federal threshold to evaluate and determine the potential impacts of an accidental release. The CalARP program mirrors the federal Risk Management Program (RMP) under the federal Clean Air Act Section 112(r), except that it includes external events and seismic analysis to the requirements and includes facilities with lower inventories of materials.

Facilities subject to the CalARP requirements must submit an RMP to the CUPA. The RMP must contain required elements, similar to those required under the federal RMP program, the specific requirements of which are determined by the CalARP "program level" that applies to the facility. For example, the RMP typically must include safety information, process hazard analysis, or hazard review, written operating procedures, training, maintenance, compliance audits, and incident investigations.

Emergency Services Act of 2009

Under the Emergency Services Act, the State developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an important segment of the plan administered by CalOES, formerly the California Emergency Management Agency. CalOES is responsible for the coordination of overall state agency response to major disasters in support of local government. The office is responsible for assuring the State's readiness to respond to and recover from all hazards (for example, natural, manmade, war-caused emergencies and disasters) and for assisting local governments in their emergency preparedness, response, recovery, and hazard mitigation efforts.

The CalOES Hazardous Materials Section coordinates statewide implementation of hazardous materials accident prevention and emergency response programs for all types of hazardous materials incidents and threats.

Releases of oil that in any way causes harm or threatens to cause harm to public health and safety, the environment, or property, require immediate notification and must be made to the CalOES Warning Center. In addition, any discharge or threatened discharge of oil into state waters must be reported to CalOES. No notification is needed if the release of oil is on land and is not discharged or threatening to discharge into state waters; does not cause harm or threaten to cause harm to the public health and safety, the environment, or property; and is under 42 gallons.

Safe Drinking Water and Toxic Enforcement Act of 1986

The Safe Drinking Water and Toxic Enforcement Act (Proposition 65; HSC Sections 25249.5 et seq.) requires businesses to notify Californians about significant amounts of chemicals that are released into the environment. It also requires the development of health-protective exposure standards for different media (air, water, land) to recommend to regulatory agencies.

OEHHA is responsible for implementing this Act. The OEHHA evaluates currently available scientific information on substances considered for placement on the Safe Drinking Water and Toxic Enforcement Act list. The Safe Drinking Water and Toxic Enforcement Act is enforced by the attorney general, district attorneys, and the private citizens acting in the public interest.

California Office of the State Fire Marshal

All proposed pipelines carrying hazardous material are under jurisdiction of the Office of the State Fire Marshal (OSFM). OSFM has delegation of authority from the PHMSA over intrastate pipelines. The OSFM requires oversight and approval of designs, operations plans, operations safety plans, construction plans, hydrologic testing per USDOT Code 49 CFR Government Code Section 195 regulating hazardous liquids pipelines design, construction, and operations. OSFM would also review the CEQA document for spill of materials analysis and hazard impact analysis and would require monitoring of construction of pipelines, transfer stations, and injection wells.

Local

Kern County General Plan

The proposed Project is subject to the Kern County General Plan (KCGP) and, therefore, would be subject to applicable goals, policies, and implementation measures of the KCGP. The Land Use, Conservation, and Open Space Element, Circulation Element, Safety Element, and Energy Element of the KCGP includes goals, policies, and implementation measures related to hazards and hazardous materials that apply to the proposed Project, as described below.

Chapter 1. Land Use, Conservation, and Open Space Element.

1.3 Physical and Environmental Constraints

Goals

Goal 1. To strive to prevent loss of life, reduce personal injuries and property damage, and minimize economic and social diseconomies resulting from natural disaster by directing development to areas that are not hazardous.

Policies

Policy 1. Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained (Map Code 2.1 [Seismic Hazard], Map Code 2.2 [Landslide], Map Code 2.3 [Shallow Groundwater], Map Code 2.5 [Flood Hazard], Map Codes 2.6–2.9 and Map Code 2.10 [Nearby Waste Facility], and Map Code 2.11 [Burn Dump Hazard]) to support such development unless appropriate studies establish that such development will not result in an unmitigated significant impact.

Policy 3. Zoning and other land use controls will be used to regulate, and prohibit, if necessary, future development when physical hazards exist.

1.4 Public Facilities and Services

Goals

Goal 9. Serve the needs of industries and Kern County residents in a manner that does not degrade the water supply and the environment and protect the public health and safety by avoiding surface and subsurface nuisances resulting from the disposal of hazardous wastes, irrespective of the geographic origin of the waste.

Policies

Policy 6. The County will ensure adequate fire protection to all Kern County residents.

Implementation Measures

Implementation Measure N. Secure complete and accurate information on all hazardous wastes generated, handled, stored, treated, transported, and disposed of within or through Kern County.

Implementation Measure O. Reduce to the greatest degree possible the amount of waste to be disposed of by encouraging private industry to construct and manage a high-quality system of transfer stations, recycling facilities, treatment plants, and incinerators located near the generators of hazardous waste.

Implementation Measure R. Roads and highways utilized for commercial shipping of hazardous waste destined for disposal will be designated as such pursuant to Vehicle Code Sections 31303 et seq. Permit applications shall identify commercial shipping routes they propose to utilize for particular waste streams.

Chapter 2. Circulation Element

2.5.4. Transportation of Hazardous Materials

Goals

Goal 1. Reduce risk to public health from transportation of hazardous materials.

Policies

Policy 1. The commercial transportation of hazardous material, identification and designation of appropriate shipping routes will be in conformance with the adopted Kern County and Incorporated Cities Hazardous Waste Management Plan.

Policy 2. Kern County and affected cities should reduce use of County-maintained roads and city-maintained streets for transportation of hazardous materials.

Implementation Measures

Implementation Measure A. Roads and highways utilized for commercial shipping of hazardous waste destined for disposal will be designated as such pursuant to Vehicle Code Sections 31303 et seq. Permit applications shall identify commercial shipping routes they propose to utilize for particular waste streams.

Chapter 4. Safety Element

4.2. General Provisions

Goals

Goal 4. The County shall encourage extra precautions be taken for the design of significant lifeline installations, such as highways, utilities, and petrochemical pipelines.

Implementation Measures

Implementation Measure F. The adopted multi-jurisdictional Kern County, California Multi-Hazard Mitigation Plan, as approved by the Federal Emergency Management Agency, shall be used as a source document for preparation of environmental documents pursuant to CEQA, evaluation of project proposals, formulation of potential mitigation, and identification of specific actions that could, if implemented, mitigate impacts from future disasters and other threats to public safety.

4.6. Wildland and Urban Fire

Hazard Identification

Policies

Policy 1. Require discretionary projects to assess impacts on emergency services and facilities.

Policy 4. Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.

Policy 6. All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.

Implementation Measures

Implementation Measure A. Require that all development comply with the requirements of the Kern County Fire Department (KCFD) or other appropriate agency regarding access, fire flows, and fire protection facilities.

4.9. Hazardous Materials

Implementation Measures

Implementation Measure A. Facilities used to manufacture, store, and use of [*sic*] hazardous materials shall comply with the UFC, with requirements for siting or design to prevent on-site hazards from affecting surrounding communities in the event of inundation.

4.10. Abandoned Open Shafts and Wells

Policies

Policy 2. The County should protect residents from the hazards associated with development in areas where wells have been drilled and abandoned for exploration and/or production of oil and natural gas.

Chapter 5. Energy Element.

5.4.5 Solar Energy Development

Policy

Policy 3. The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

Buttonwillow Community Plan

The Buttonwillow Community Plan does not include any hazards or hazardous materials standards that are relevant to the proposed Project.

Kern County Certified Unified Program Agency

The CUPA was developed to consolidate the administration of hazardous materials programs. In the Kern County, the CUPA is the Environmental Health Services Division. The city of Bakersfield's CUPA is the Bakersfield Fire Department. Under CUPA, site inspections of aboveground storage tanks, underground storage tanks, hazardous waste treatment, hazardous waste generators, hazardous materials management and response plans, and the California Fire

Code are consolidated in a single inspection. These departments also provide emergency response to hazardous materials events.

Kern County Multi-Hazard Mitigation Plan

The purpose of the multi-hazard mitigation plan is to reduce or eliminate the long-term risk to people and property from natural hazards and their effects in the County. The plan was updated in 2019-20 and reduces Kern County's vulnerabilities related to losses from future disasters. The multi-jurisdictional plan includes the County and the incorporated municipalities of Arvin, Bakersfield, California City, Delano, Maricopa, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco. The County also encompasses areas of land controlled by federal and state land management agencies, including the California Department of Forestry and Fire Protection, Bureau of Land Management, and Bureau of Reclamation. While other governmental entities have jurisdiction in these parts of the County, the Hazard Mitigation Plan could also be used to document and coordinate mitigation efforts among federal, state, and local jurisdictions. This plan also covers 49 special districts that include school, airport, community service, water, recreation and park, sanitation, and other districts.

Kern County Wildland Fire Management Plan

The Kern County Wildland Fire Management Plan documents the assessment of wildland fire situations throughout the State Responsibility Areas within the County. The KCFD Wildland Fire Management Plan provides for systematically assessing the existing levels of wildland protection services and identifying high-risk and high-value areas that are potential locations for costly and damaging wildfires. The goal of the plan is to reduce costs and losses from wildfire by protecting assets at risk through focused pre-fire management prescriptions and increasing initial attack success. Based on this assessment, preventive measures are implemented, including the creation of wildfire protection zones.

Kern County Fire Code

Kern County has adopted, by reference, portions of the California Building Standards Code and the UFC, with modifications and amendments, in Chapter 17.32 of the Kern County Code of Building Regulations (Fire Code). The purpose of this code is to prescribe the minimum requirements necessary to establish a reasonable level of fire safety to protect life and property from hazards created by fire, explosion, and dangerous conditions.

The Kern County Fire Code defines a hazardous fire area as any land that is covered with grass, grain, brush, or forest and situated (for example, in an inaccessible location) so that a fire originating upon such land would present an abnormally difficult job of suppression and would result in great and unusual damage through fire or the resulting erosion.

Kern County Fire Department Unit Strategic Fire Plan

The KCFD Unit Strategic Fire Plan, adopted in March of 2025 is the most current document that assesses the wildland fire situation throughout the SRA within the County. Similar to other plans, this document includes stakeholder contributions and priorities and identifies strategic targets for

pre-fire solutions as defined by the people who live and work within local fire hazards areas. The plan provides for a comprehensive analysis of fire hazards, assets at risk, and level of services to systematically assess the existing levels of wildland protection services and identifies high-risk and high-value areas that are potential locations for costly and damaging wildfires. Additionally, the plan provides an annual report of unit accomplishments which, in 2017, included completion of fuel reduction projects, hosted three wildfire safety expos in battalions 1,5, and 7, and the award of three SRA fuel reduction grants for a total of $500,000. The plan provides an overview of KCFD Battalions, ranks areas in terms of priority needs, and identifies the areas of SRA. According to the plan, 69 percent of Kern County areas are within a SRA. The County includes six different fuel management areas—Tehachapi, Western Kern, Northern Kern, Mt. Pinos Communities, Kern River Valley, and Valley.

Fire Prevention Standard No. 1204-2 Solar Panels (Ground Mounted)

The KCFD Fire Prevention Division adopted Standard No. 1204-2 Solar Panels Ground Mounted (Commercial) on May 25, 2023. The standard is implemented in accordance with the 2022 CFC and Kern County Ordinance and is an official interpretation of the Kern County Fire Marshal's Office. The standard outlines installation requirements for commercial ground-mounted photovoltaic solar panels. The proposed Project involves mounting systems for the modules on steel support posts that would be pile driven into the ground and, therefore, would comply with the ground-mounted requirements of this fire prevention standard. Ground-mounted solar panel requirements of this standard include water supply, clearance and combustibles, stationary storage battery/energy storage systems, clean agent system permits, fire extinguisher placement, and emergency vehicle access (KCFD 2023).

Kern County and Incorporated Cities Hazardous Waste Management Plan

State Assembly Bill 2948 (1986) authorized local governments to develop comprehensive hazardous waste management plans. The intent of each plan is to ensure that adequate treatment and disposal capacity is available to manage the hazardous wastes generated within the local government's jurisdiction. The Kern County and Incorporated Cities Hazardous Waste Management Plan (Hazardous Waste Plan) was first adopted by Kern County and each incorporated city before September 1988 and was subsequently approved by the California Department of Health Services. The Hazardous Waste Plan was updated and incorporated by reference into the KCGP in 2004 as permitted by HSC Section 25135.7(b), and thus must be consistent with all other aspects of the KCGP.

The Hazardous Waste Plan provides policy direction and action programs to address current and future hazardous waste management issues that require local responsibility and involvement in Kern County. In addition, the Hazardous Waste Plan discusses hazardous waste issues and analyzes current and future waste generation in the incorporated cities, County, and state, and federal lands. The purpose of the Hazardous Waste Plan is to coordinate local implementation of a regional action to effect comprehensive hazardous waste management throughout Kern County. The action program focuses on development of programs to equitably site needed hazardous waste management facilities; to promote on-site source reduction, treatment, and recycling; and to provide for the collection and treatment of small quantity hazardous waste generators. An important

component of the Hazardous Waste Plan is the monitoring of hazardous waste management facilities to ensure compliance with federal and state hazardous waste regulations. The siting criteria and any subsequent environmental documentation required pursuant to CEQA also would mitigate adverse impacts associated with the siting of any new hazardous waste facility.

Kern County Airport Land Use Compatibility Plan

The purpose of the Kern County Airport Land Use Compatibility Plan (ALUCP) is to establish procedures and criteria by which Kern County and the affected incorporated cities can address compatibility issues when making planning decisions regarding airports and military operations areas and the land uses around them. In general, the ALUCP describes and maps influence areas in the vicinity of public use airports in Kern County where development restrictions are established to prevent the construction or placement of structures or objects which may be an obstruction to air navigation. The ALUCP covers airports in the unincorporated portions of the County and the affected incorporated cities of Bakersfield, California City, Delano, Shafter, Taft, Tehachapi, and Wasco. The ALUCP was last updated in 2012. As required by Aeronautics Law, Public Utilities Code (Chapter 4, Article 3.5), proposals for public or private land use developments that occur within defined airport influence areas are subject to compatibility review. The principal airport land use compatibility concerns addressed by the plan are: (1) exposure to aircraft noise, (2) land use safety with respect to both people and property on the ground and the occupants of aircraft, (3) protection of airport air space, and (4) general concerns related to aircraft overflights.

The nearest public airports are the Elk Hills – Buttonwillow Airport, located at Buttonwillow, California, approximately 3.5 miles (at the closest point) south of the Project site, and the Wasco-Kern County Airport located 14101 Airport Road, Wasco, California 93280, approximately 7.8 miles (at the closest point) northeast of the Project site. The proposed Project is not within either airports' ALUCP-defined Airport Influence Area. (**Figure 3.9:** *Airport Land Use Compatibility Map*, in Chapter 3.0, *Project Description*, that illustrates the Project site in relation to these airports.)

4.9.4 Impacts and Mitigation Measures

Methodology

The potential impacts of the proposed Project were evaluated using the thresholds of significance provided below. The analysis of impacts regarding public health focus on whether the anticipated activity would increase risks to public safety and the environment. To evaluate these risks, present practices, regulatory requirements, and accidents/spills/releases were considered.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the CEQA Guidelines, to determine if a project could potentially have a significant adverse effect related to hazards and hazardous materials. A project would normally be considered to have a significant impact if it would:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 1/4 mile of an existing or proposed school;

d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;

e) For a project located within the adopted Kern County ALUCP, result in a safety hazard or excessive noise for people residing or working in the project area;

f) Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan;

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires; and/or

h) Generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste?

   Specifically, would the project exceed the following qualitative threshold:

   The presence of domestic flies, mosquitoes, cockroaches, rodents, and/or any other vectors that the applicable enforcement agency determines that any of the vectors:

   i. Occur as immature stages and adults in numbers considerably in excess of those found in the surrounding environment; and

   ii. Are associated with the design, layout, and management of project operations; and

   iii. Would disseminate widely from the property; and

   iv. Cause detrimental effects to the public health or well-being of the majority of the surrounding population.

Project Impacts

Impact 4.9-1: Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction

Construction of the proposed Project (solar facilities, transformers, battery energy storage system(s), solar meteorological station(s), substation(s), gen-tie lines, and radio tower) would not involve the routine transport, use, or disposal of hazardous materials, as regulated by the HMTA.

Most of the hazardous materials and hazardous waste generated by the proposed Project would occur during the temporary construction period. Construction activities would involve the use of cleaning fluids, solvents, petroleum products, dust palliatives, and herbicides. Some solid hazardous waste (for example, welding materials and dried paint) may also be generated during construction. Any hazardous wastes that are produced as a result of project construction would be required to be collected, transported, and disposed of, pursuant to the Kern County Unified Program.

To comply with regulatory requirements for the transport, use, and disposal of hazardous materials, material safety data sheets for all applicable materials present at the site would be made readily available to on-site personnel in accordance with required BMPs as part of a SWPPP during construction. See Section 4.10, *Hydrology and Water Quality.* Workers would be trained to properly identify and handle all hazardous materials. Hazardous waste would be either recycled or disposed of at a permitted and licensed treatment and/or disposal facility. All hazardous waste shipped off-site for recycling or disposal would be transported by a licensed and permitted hazardous waste hauler and disposed at an approved location. Hazardous materials such as petroleum fuels and lubricants for field equipment would be subject to the Material Disposal and Solid Waste Management Plan, an SPCC plan, and other measures to limit releases of hazardous materials and wastes. (See further discussion of BMP requirements in Section 4.10, *Hydrology and Water Quality*, of this Draft EIR.)

Recyclable materials including wood, shipping materials, and metals would be separated for recycling. The disposal of all oils, lubricants, and spent filters would be performed in accordance with all applicable regulations including the requirements of licensed receiving facilities. Overall, the relatively limited use and small quantities of hazardous materials, and subsequent transport and disposal of such materials, during construction would be controlled through compliance with applicable regulations including the Kern County and Incorporated Cities Hazardous Waste Management Plan. Mitigation Measure MM 4.9-1 requires the preparation of a HMBP, which would delineate hazardous material and waste storage areas, methods to be used to minimize impacts, and procedures for handling and disposing of unanticipated hazardous materials encountered during construction. This plan, would also require that the Project proponent ensure all contractors working on the Project site have familiarity with the HMBP. As such, impacts during construction related to the transport, use, or disposal of hazardous materials would be less than significant.

Operation

Operation and maintenance (O&M) activities associated with PV solar facilities involve limited use of hazardous materials and generation of hazardous waste. Any hazardous materials that would be used would be stored on-site and in designated areas in accordance with the HMBP, which is required to be maintained throughout the life of the proposed Project (Mitigation Measure MM 4.9-1). The HMBP would 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 impacts 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. Additionally, the project sites would be secured and enclosed within a chain link fence to prevent public access to hazardous materials and the PV panels. The interconnection (power line) portions of the proposed Project would largely use previously approved gen-tie lines and these connections would not require use of hazardous materials during operation. Primary O&M activities that would occur on the Project site during operation would consist of cleaning of PV panels, monitoring electricity generation, providing site security, and facility maintenance. No heavy equipment would be necessary during normal project operations. O&M vehicles would include light to medium duty trucks and all-terrain vehicles for routine and unscheduled maintenance. Large heavy-haul transport equipment and cranes may be brought to the Project site infrequently for equipment repair or replacement. Long-term maintenance and equipment replacement would be scheduled in accordance with manufacturer recommendations. Solar panels are warranted for 25 years or longer and are expected to have a life of 30 years or more. Moving parts, such as motors and tracking module drive equipment, motorized circuit breakers and disconnects, and inverter ventilation equipment, would be serviced on a regular basis, and unscheduled maintenance would be conducted as necessary. Per Mitigation Measure MM 4.9-**1**, the HMBP would: describe proper handling, storage, transport, and disposal techniques and methods to be used to avoid spills and minimize impacts in the event of a spill; and ensure that all handling, storage, and disposal of hazardous materials would be conducted in accordance with proven practices to minimize exposure to maintenance workers and/or the public.

Project operations would require the use of transformer oil at the project substations and the energy storage system could contain battery acids, as well as lithium ion, lead acid, sodium sulfur, and sodium or nickel hydride. All transformers would be equipped with spill containment areas and battery storage would comply with OSHA requirements such as inclusion of ventilation, acid-resistant materials, and spill response supplies. All components would be subject to an SPCC plan, pursuant to all applicable federal, state, and local regulations. Dust palliatives and herbicides, if used during operations to control vegetation, may be transported to the Project site. These materials would be stored in appropriate containers to prevent accidental release. I-5 would be the likely designated route for the transport of hazardous materials. In addition, implementation of Mitigation Measure MM 4.9-1 would further reduce impacts related to hazards to a less than significant level.

Photovoltaic Solar Panels and Cadmium Telluride

As described previously, the PV solar panels that would be installed on the Project site would be selected from those commercially available and thus are most likely made from either polycrystalline silicon or CdTe thin film technology. Polycrystalline silicon and thin film CdTe solar modules that would be installed on the Project site may include small amounts of semiconductor or electrically conducting materials encapsulated within the modules that are considered to be hazardous. Because such materials are in a solid and non-leachable state, broken polycrystalline silicon PV panels and thin film CdTe solar modules would not be a source of hazardous materials. Polycrystalline and thin film CdTe modules silicon panels removed from the site would be recycled or otherwise disposed at an appropriate waste disposal facility.

Electromagnetic Fields

One or more on-site substation(s) or switchyard(s) are proposed as part of the proposed Project. Power would be transmitted from the proposed substation(s) to the Pacific Gas & Electric (PG&E) Midway Substation via up to 500 kV, overhead and/or underground gen-tie line(s). The alignment is discussed in more detail in Chapter 3, *Project Description*, of this Draft EIR.

Further, implementation of the proposed Project would not result in the significant risk of EMFs associated with overhead power lines. As the State has not adopted any specific limits or regulations regarding EMF levels from electric power facilities, impacts would be less than significant.

Decommissioning and Disposal

The proposed solar equipment is estimated to have a lifespan of over 35 years; however, the proposed Project could have a longer life expectancy if the Project proponent replaces and repowers certain project components. At the end of the proposed Project's operational term, the applicant would determine whether the Project site should be decommissioned and deconstructed or if the Project proponent would seek an extension of the entitlements that are required for the proposed Project. If any portion of the Project site is decommissioned, it would be converted to other uses in accordance with the applicable land use regulations in effect at that time.

The decommissioning and restoration process involves removing aboveground and belowground structures, restoring topsoil, revegetation, and seeding. Temporary erosion and sedimentation control BMPs would be used during the proposed Project's decommissioning phase.

Solar panels would be removed and placed in secure transport crates or container boxes for storage and transported to another site for reuse, material recycling, or disposal. The bolts and reusable fasteners that had attached each module to the racks would be removed and saved for reuse. Once the solar modules are removed, the racks would be disassembled and the structures supporting the racks would be removed and salvaged or recycled. Electrical equipment would be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment off-site. Electrical equipment, transformers, and switching gear on the inverter and interconnection transformer pads and all above ground electrical wiring would be removed and recycled or disposed. All other aboveground site infrastructure—including fences, awnings, and the concrete pads that support inverters and related equipment—would be removed. Fences and gates would be removed. Removed materials would be recycled to the greatest extent possible. All debris would be removed from the area.

Largely, solar field facilities can be refurbished and sold, are recyclable, or can be resold as scrap material. Panels typically consist of silicon, glass, and an aluminum frame. Tracking systems (not counting the motors and control systems) typically consist of aluminum, steel, and concrete that can be recycled. Fuel, hydraulic fluids, and oils would be transferred directly to a tanker truck from the respective tanks and vessels. Storage tanks/vessels would be rinsed and transferred to trucks per standard BMPs. All material that cannot be salvaged would be appropriately disposed at an authorized site in accordance with applicable regulations, including 22 CCR Division 4.5,

which addresses hazardous waste, and Chapter 8.28 of the Kern County Municipal Code, which addresses solid waste. All oils would be recycled at an appropriate facility. Batteries would be recycled per manufacturer recommendations specific to the battery technology and consistent with regulatory standards.

Site personnel involved in handling these materials would be trained with proper handling techniques. Containers used to store hazardous materials would be inspected regularly for any signs of failure or leakage. Transportation of the removed hazardous materials would comply with regulations for transporting hazardous materials, including 22 CCR Division 4.5, which addresses hazardous waste.

Numerous recyclers for the various materials to be used on the Project site operate in Kern County. Metal, scrap equipment, and parts that do not have free-flowing oil can be sent for salvage. Equipment containing any free-flowing oil from equipment would be managed as used oil, which is a hazardous waste in California. Decommissioning would comply with federal, state, and local standards and all regulations that exist when the proposed Project is decommissioned. Upon removal of the solar field components, the site would be returned to conditions generally consistent with the existing (pre-development) conditions.

Current CdTe PV modules pass federal leaching criteria for non-hazardous waste, due in part to the low solubility of CdTe, which means they would not pose a significant risk for cadmium leaching if they reached a landfill. CdTe releases are unlikely to occur during accidental breakage or fire due to the high chemical and thermal stability of CdTe. Disposal risks of end-of-life CdTe PV modules are minimized because of the low solubility of CdTe and because the modules can be effectively recycled at the end of their approximately 35-year life. Studies indicate that unless the PV module is purposefully ground to a fine dust, use of CdTe in PV modules do not generate any emissions of CdTe (Fthenakis 2003). These studies have consistently concluded that use of CdTe PV modules do not present an environmental risk.

In the case of both crystalline silicon and thin film CdTe PV technology, a national PV module recycling network has been established by the U.S. Solar Energy Industry Association for providing module collection and recycling services (SEIA 2025). Compliance with a Project-specific HMBP, as described in Mitigation Measure MM 4.9-1, would reduce the likelihood of a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials, and impacts would be less than significant.

PG&E Midway (Midway) Substation Upgrades

The proposed Project includes enlarging the Midway Substation's 500-kV yard within the PG&E owned Midway Substation property boundaries. The Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities as part of the proposed Project. PG&E may install two four-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest of the Midway Substation property. Other activities include:

installing up to nine, 67.5 cubic feet underground substructure vaults along the conduit trenches; removing an existing precast security wall at the northwest side of the Midway Substation and replacing it with a new 12-foot wall; grading of the connection area; installing approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker; equipment foundations and concrete trenches; equipment cabinets; bus structures; communication lines; conduits; pull boxes; and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the Point of Change of Ownership for the proposed Project. Up to four approximately 175-foot-tall lattice steel towers or tubular steel poles would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads. For a detailed description of the Midway Substation upgrades, see Section 3.0, *Project Description.*

Similar to other construction activities involved with the proposed Project, construction activities would involve the use of hazardous materials and generation of solid hazardous waste. PG&E should collect, transport, and dispose any hazardous wastes that are produced from project construction, pursuant to the Kern County Unified Program. Further, to comply with regulatory requirements for the transport, use, and disposal of hazardous materials, material safety data sheets for all applicable materials present at the site should be made readily available to on-site personnel in accordance with required BMPs as part of a SWPPP during construction. All hazardous waste shipped off-site for recycling or disposal must be transported by a licensed and permitted hazardous waste hauler and disposed at an approved location. Certain hazardous materials (for example, petroleum fuels and lubricants for field equipment) would be subject to a Material Disposal and Solid Waste Management Plan, an SPCC plan, and other measures to limit releases of hazardous materials and wastes. (See further discussion of BMP requirements in Section 4.10, *Hydrology and Water Quality*, of this Draft EIR.) Finally, recyclable materials would be separated for recycling. The disposal of all oils, lubricants, and spent filters would be performed in accordance with all applicable regulations including the requirements of licensed receiving facilities. PG&E should implement Mitigation Measure MM 4.9-1 requiring preparation of an HMBP, and PG&E has adopted BMPs (Appendix M of this Draft EIR) that apply to all PG&E construction projects which would avoid or further mitigate impacts associated with the use of hazardous materials.

During operations, most of the Midway Substation facilities would be secured and enclosed within the proposed, relocated 12-foot perimeter wall to prevent public access to hazardous materials and Midway Substation facilities. The interconnection (power line) portions of the proposed Project would largely use previously approved gen-tie lines and these connections would not require use of hazardous materials during operation. Large heavy-haul transport equipment and cranes may be brought to the Midway Substation site infrequently for equipment repair or replacement. Long-term maintenance and equipment replacement would be scheduled in accordance with manufacturer recommendations.

Decommissioning of PG&E Midway Substation facilities would involve similar, yet substantially less activities, as compared to those involved at other areas of the Project site. Similar to other

Project site decommissioning activities, decommissioning activities at the Midway Substation site likely would involve handling hazardous materials. Site personnel involved in handling these materials would be trained with proper handling techniques. Measures to avoid, contain, and remediate areas associated with the release of hazardous material would be implemented including the use and inspection of containers to store hazardous materials. Transportation of the removed hazardous materials must comply with regulations for transporting hazardous materials, including 22 CCR Division 4.5, which addresses hazardous waste. Materials would be recycled and disposed pursuant to applicable federal, state, and local regulations.

Summary

The proposed Project has the potential to create potentially significant but mitigable impacts regarding the creation of a significant hazard to the public or the environment through the routine transport, use, and disposal of hazardous materials. Compliance with federal, state, and local regulations and implementation of Mitigation Measure MM 4.9-1 requiring the implementation of an HMBP would reduce impacts to a less than significant level.

Mitigation Measures

MM 4.9-1: During the life of the project, including decommissioning, the project proponent shall prepare and maintain a Hazardous Materials Business Plan (HMBP), as applicable, pursuant to Article 1 and Article 2 of California Health and Safety Code 6.95 and in accordance with Kern County Ordinance Code 8.04.030, by submitting all the required information to the California Environmental Reporting System (CERS) at http://cers.calepa.ca.gov/ for review and acceptance by the Kern County Environmental Health Services Division/Hazardous Materials Section. The HMBP shall:

a. Delineate hazardous material and hazardous waste storage areas

b. Describe proper handling, storage, transport, and disposal techniques

c. Describe methods to be used to avoid spills and minimize impacts in the event of a spill

d. Describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction and operation

e. Establish public and agency notification procedures for spills and other emergencies including fires

f. Describe federal, state, or local agency coordination, as applicable, and cleanup efforts that would occur in the event of an accidental release

g. Include procedures to avoid or minimize dust from existing residual pesticides and herbicides that may be present on the site

The project proponent shall ensure that all contractors working on the project are familiar with the facility's HMBP as well as ensure that one copy is available at the project site at all times. In addition, a copy of the accepted HMBP from CERS

shall be submitted to the Kern County Planning and Natural Resources prior to issuance of a building permit.

Level of Significance after Mitigation

Less than significant.

Impact 4.9-2: Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Construction

Site-specific accidental spills could include accidental release of oil from any uncapped wells exposing construction workers to the dangers associated with construction near oil wells. According to the Phase I ESA (Appendices H.1 and H.2 of this Draft EIR), multiple oil wells (plugged, cancelled, and idle) exist on Sites 1, 4, and 8. Additionally, no evidence of earthen pits, tanks, or other potential points of interest/release associated with the oil wells were observed on the aerial photographs or during a site reconnaissance that was completed as part of the Phase I ESA. Therefore, the risk for accidental spills related to any abandoned, unplugged, or idle wells during project construction is low. Regardless, proposed Project construction activities have the potential to encounter a previously unknown abandoned, unplugged, and/or idle well, which has the potential to result in a hazard to the public or the environment through the release of hazardous materials in the environment.

Other potential impacts that may result from construction of the proposed Project includes the accidental release of materials, such as cleaning fluids and petroleum products including lubricants, fuels, and solvents. However, implementation of Mitigation Measure MM 4.9-1, would require a HMBP plan pursuant to Article 1 and Article 2 of the California HSC, which requires management of hazardous materials to avoid threat to public safety if chemicals are accidentally released. Mitigation Measure MM 4.9-1 would require the Project proponent to describe methods to be used in order to avoid spills and minimize impacts in the event of a spill and also requires public and agency notification procedures for spills and other emergencies. The proposed Project also will implement applicable BMPs included in a National Pollutant Discharge Elimination System-mandated SWPPP during construction. Relevant BMPs would include designated fueling and maintenance areas that are supplied with temporary spill containment equipment, such as absorbent booms and pads, and petroleum waste disposal containers.

Construction of the proposed Project requires the installation of solar facilities and battery energy storage system (BESS) infrastructure across 11,983 project acres of existing agricultural and vacant land. This requires the use of herbicide application for the siting of project components. The application of herbicide to the site has potential for drift, potentially creating unintended application of herbicides off-site. Mitigation Measure 4.9-2 would require the construction contractor to apply herbicides responsibly, approved for use in California, and prohibits application when wind velocity exceeds 10 miles per hour to avoid drift. With implementation of

Mitigation Measures MM 4.9-1 and MM 4.9-2, the upset and accident conditions involving the release of hazardous materials into the environment would be reduced to a less-than-significant level.

Operation

Each enclosed transformer at the substation would include mineral oil, but secondary containment would be provided in accordance with applicable federal, state, and local laws and regulations. The mineral oil contained in each transformer normally does not require replacement, and mineral oil disposal would be in accordance with all applicable federal, state, and local laws and regulations. As stated in the environmental setting above, standard operations of polycrystalline silicon PV systems does not result in pollution emissions to air, water, or soil. Release of hazardous materials is unlikely to occur during accidental breakage of the polycrystalline silicon solar panels. Similarly, fire damage would not result in the release of hazardous materials (Fthenakis 2003).

Potential CdTe emissions from fire are unlikely to occur at the Project site because of the lack of fuel to support a sustained wildfire. Grass fires are the most likely fire exposure scenario for ground-mounted PV systems, and these fires tend to be short-lived due to the thinness of grass fuels. As a result, these fires are unlikely to expose PV modules to prolonged fire conditions or to temperatures high enough to volatilize CdTe, which has a melting point of 1,041˚C. Moreover, even if a grassland wildfire could reach that temperature, the actual CdTe emissions from a PV module would be insignificant (~0.04 percent) due to encapsulation in the molten glass matrix (Fthenakis 2003).

Potential CdTe emissions from broken PV modules exposed to precipitation are also unlikely. Based on warranty return data, the breakage rate of CdTe PV modules is low, one percent over 25 years, which translates to an average of 0.04 percent per year. This breakage rate is an overestimate because over one-third of PV module breakage occurs during shipping and installation. Modules that break during shipping and installation are removed from the construction site and returned to a manufacturing facility for recycling. Even if the CdTe semiconductor layer becomes exposed to the environment, it strongly resists being released from the PV module into the environment, and CdTe has an extremely low solubility in water.

The CdTe PV modules do not pose a threat to nearby residences. The use of CdTe PV modules at the Project site would not result in human or aquatic exposure of cadmium. A recent research article, Fate and Transport Evaluation of Potential Leaching Risks from CdTe PVs (Sinha et al. 2012), further substantiates that during operation, CdTe PV modules do not pose a threat to human health or the environment due to its construction. The study evaluates the worst-case scenario to estimate potential exposures to CdTe compounds in soil, air, and groundwater. The results show that exposure point concentrations in soil, air, and groundwater are one to six orders of magnitude below human health screening levels and below background levels, indicating that it is highly unlikely that exposures would pose potential health risks to on-site workers or off-site residents.

In addition, the hazardous materials that would be present in the BESSs would be contained pursuant to applicable federal, state, and local requirements. Compliance with OSHA

requirements would involve appropriate ventilation, use of acid-resistant materials, and the provision of spill protection supplies.

Removal and/or maintenance of vegetation would require pesticide and herbicide use during both construction and operation. If not handled properly, use of these products could create a hazard to the public (construction workers, maintenance employees, and nearby residences), resulting in a potentially significant impact. Mitigation Measure MM 4.9-2 would reduce impacts related to irresponsible use of pesticides and herbicides to a less than significant level by requiring proper use of pesticides and herbicides by a certified applicator, who will follow best practices of application, specifically around observed nests, during rainfall, and wind velocity. Mitigation Measure MM 4.9-2 requires a written record of all herbicide applications on the site.

As stated above, the proposed Project would not involve the routine transport, use, or disposal of substantive quantities of hazardous materials, as defined by the Hazardous Materials Transportation Uniform Safety Act. The closest designated route for the transport of hazardous materials is I-5 which crosses the Project site (Federal Motor Carrier Safety Administration 2024). Adherence to regulations and standard protocols during the storage, transportation, and usage of any hazardous materials would minimize and avoid the potential for significant impacts related to upset and accident conditions.

A geophysical site investigation conducted on the Project site would identify any abandoned steel-case oil wells to be present. The geophysical site investigation will serve as a guide for the design of the proposed Project, to ensure that former oil wells that are not abandoned to current standards are avoided during planning, design, construction, and operation. The risk associated with disturbing or damaging an abandoned improperly capped oil well is potentially significant if hazardous chemicals are released or injury or fatality to unsuspecting people as a result. Mitigation Measure MM 4.9-3 would require the Project proponent to submit a plan showing that areas identified as potential containing abandoned wells have been avoided or remediated consistent with applicable state standards as administered by CalGEM. CalGEM requires any construction above or near plugged or abandoned oil and gas wells to be avoided, and remediation of wells to meet current CalGEM standards, including wells discovered during excavation or grading. Implementation of Mitigation Measure MM 4.9-3 would reduce potential impacts to less than significant.

Overall, adherence to regulations and standard protocols during the storage, transportation, and usage of any hazardous materials, and implementation of Mitigation Measures MM 4.9-1 through MM 4.9-3 would minimize or reduce potential impacts related to reasonably foreseeable upset and accident conditions involving the release of hazardous materials, to a less-than-significant level.

Decommissioning and Disposal

The decommissioning and disposal process is described under Impact 4.9-1, above. Most panel materials would be recycled to the extent feasible, with minimal disposal to occur in landfills in compliance with all applicable laws. The PV module manufacturer provides CdTe module collection and recycling services. In any case, current CdTe PV modules pass federal leaching

criteria for non-hazardous waste, due in part to the low solubility of CdTe, which means they would not pose a significant risk for cadmium leaching if they reached a landfill. Batteries within the energy storage facility would also be recycled to the extent feasible, with minimal landfill disposal.

The proposed Project would include BMPs to ensure the collection and recycling of modules and to avoid the potential for modules to be disposed as municipal waste. All decommissioning would occur within the Project site and previous disturbance limits, and would involve similar, though reduced construction equipment and activities. Site personnel involved in handling materials associated with decommissioning would be trained with proper handling techniques. Compliance with applicable federal, state, and local regulations and implementation of Mitigation Measures MM 4.9-1, MM 4.9-2, and MM 4.9-3 would ensure that proposed Project decommissioning would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accidental conditions involving the release of hazardous materials into the environment, and impacts would be less than significant.

Implementation of Mitigation Measures MM 4.9-1 and MM 4.9-2 would reduce potential impacts associated with the upset and accident conditions involving the release of hazardous materials during proposed Project construction and operation to less than significant.

Midway Substation Upgrades

As described above in Impact 4.9-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation.

There are no known abandoned, unplugged, and/or idle wells located within the Midway Substation site (CalGEM n.d.). Therefore, the risk for accidental spills related to any abandoned, unplugged, or idle wells during project construction is low. Regardless, proposed construction activities have the potential to encounter a previously unknown abandoned, unplugged, and/or idle well, which could result in the release of hazardous materials in the environment. Implementation of Mitigation Measure MM 4.9-3 would reduce this impact to a less-than-significant level.

Other potential impacts that may result from construction of the Midway Substation facilities include the accidental release of materials, such as cleaning fluids and petroleum products including lubricants, fuels, and solvents. However, implementation of Mitigation Measure MM 4.9-1, would require a HMBP plan pursuant to Article 1 and Article 2 of the California HSC, which requires management of hazardous materials to avoid threat to public safety if chemicals are accidentally released. Mitigation Measure MM 4.9-1 would require the Project proponent to describe methods to be used to avoid spills and minimize impacts in the event of a spill and implementing public and agency notification procedures for spills and other emergencies. Further, PG&E has adopted BMPs (Appendix M of this Draft EIR) that apply to all PG&E construction

projects which would avoid or further mitigate impacts associated with the use of hazardous materials (for example, BMPs 9 and 10).

Construction and operation of the Midway Substation facilities may involve use of herbicides, which have potential for drift, potentially creating unintended application of herbicides off-site. Mitigation Measure MM 4.9-2 would require the application of herbicides responsibly, approved for use in California, and would prohibit application when wind velocity exceeds 10 miles per hour to avoid drift. Further, PG&E BMP 28 (Appendix M of this Draft EIR) which requires input from a licensed pest control advisor regarding the application of herbicides would avoid or further reduce hazards from the use of herbicides.

Decommissioning of PG&E Midway Substation facilities would involve similar, yet substantially less activities, as compared to those involved at other areas of the Project site. Similar to other Project site decommissioning activities, decommissioning activities at the Midway Substation site likely would involve handling hazardous materials. Site personnel involved in handling these materials would be trained with proper handling techniques. Measures to avoid, contain, and remediate areas associated with the release of hazardous materials would be implemented including the use and inspection of containers to store hazardous materials. Transportation of the removed hazardous materials must comply with regulations for transporting hazardous materials, including 22 CCR Division 4.5, which addresses hazardous waste. Materials would be recycled and disposed pursuant to applicable federal, state, and local regulations.

Summary

The proposed Project has the potential to create potentially significant but mitigable impacts regarding the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment. Compliance with federal, state, and local regulations and implementation of Mitigation Measures MM 4.9-1 through MM 4.9-3 would reduce impacts to a less-than-significant level.

Mitigation Measures

Implement Mitigation Measure MM 4.9-1, as described above**,** and the following.

MM 4.9-2: The project proponent/operator shall continuously comply with the following:

a. The construction contractor or project personnel shall use herbicides that are approved for use in California, and are appropriate for application adjacent to natural vegetation areas (i.e., non-agricultural use). Personnel applying herbicides shall have all appropriate state and local herbicide applicator licenses and comply with all state and local regulations regarding herbicide use.

b. Herbicides shall be mixed and applied in conformance with the manufacturer's directions.

c. 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.

d. Products identified as non-toxic to birds and small mammals shall be used if nests or dens are observed; and herbicides shall not be applied if it is raining at the site, rain is imminent, or the target area has puddles or standing water.

e. Herbicides shall not be applied when wind velocity exceeds 10 miles per hour. If spray is observed to be drifting to a nontarget location, spraying shall be discontinued until conditions causing the drift have abated.

f. A written record of all herbicide applications on the site, including dates and amounts, shall be furnished annually to the Kern County Planning and Natural Resources Department.

MM 4.9-3: Prior to initiating ground disturbing activities, the project proponent shall provide to the Director of Planning and Natural Resources documentation demonstrating that coordination with California Department of Conservation, Geologic Energy Management Division (CalGEM) has been successfully completed regarding the avoidance and/or remediation of abandoned oil wells within the solar field area. The documentation shall state that proposed construction above or near plugged or abandoned oil and gas wells has been avoided, and/or that remediation of wells (as applicable) meets current CalGEM standards.

Level of Significance after Mitigation

Less than significant.

Impact 4.9-3: Would the Project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

The Project site is not located within 0.25-mile of any school. The nearest school is Buttonwillow Elementary School, located approximately one mile (at the closest point) southwest of Site 1 at 42600 Highway 58 Buttonwillow, California 93206. Therefore, there would be no impact related to hazardous emissions within 0.25-mile of a school.

Midway Substation Upgrades

Buttonwillow Elementary School (that is, the closest school to the Midway Substation site) is located approximately 6.3 miles (at the closest point) from the Midway Substation site.

Summary

The proposed Project does not have the potential to create an impact related to hazardous emissions within 0.25 mile of a school.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Not applicable—no impacts would occur.

Impact 4.9-4: Would the Project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?

According to the Phase I ESA (Appendices H.1 and H.2 of this Draft EIR) that was prepared for the proposed Project, six facilities within the Project site are included on an environmental regulatory database for hazardous materials sites pursuant to Government Code Section 65962.5. All but two of these facilities did not have reported violations. Keyvan Farms, located within the central portion of Site 1, received a violation in 2015 for failure to submit an adequate training program in safety procedures in the event of a release or threatened release of a hazardous material. The facility returned to compliance within 30 days of the posted violation. Tjaarda Dairy located within Site 6 received the following violations: out-of-spec repair of a single wall tank; failure to submit chemical inventory information for hazardous materials on-site, complete employee trainings to respond to a release of threated hazardous material, or complete a site map of chemical inventory and locations; improper storage of hazardous waste oil and holding wastes over a specific hold time; and waste application to crops grown resulted in excess nitrogen balance ratios. However, the facility was found to be in compliance within 180 days of each violation. As described in the Preliminary Closure Plan for Tjaarda Dairy (Appendix L of this Draft EIR), a Hazardous Waste Inventory and Building Survey would be conducted prior to dairy decommissioning to ensure any hazardous and non-hazardous wastes are disposed of correctly. The dairy would also submit a final Facility Closure Plan to SWRCB in compliance with the regulation mandates, subject to review and approval. According to the Phase I ESA report, it is unlikely that any of these sites have impacted the environmental conditions of the subject property. Furthermore, the Phase I ESA prepared for the Project site did not find evidence of RECs or controlled RECs (CREC) in connection with the Project site.

Midway Substation Upgrades

As described above in Impact 4.9-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation.

The Midway Substation site is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

Summary

Although the proposed Project will partially occur on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, it does not have the potential to create a significant hazard to the public or the environment from the release of, or exposure to, hazardous materials.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Less than significant.

Impact 4.9-5: For a Project located within the adopted Kern County Airport Land Use Compatibility Plan, would the Project result in a safety hazard or excessive noise for people residing or working in the Project site?

The nearest public airports to the Project site are the Elk Hills – Buttonwillow Airport, located at Buttonwillow, California, approximately 5.3 miles (at the closest point, excluding the Midway Substation site which is discussed below) south of the proposed Project site, and the Wasco-Kern County Airport located at 14101 Airport Rd, Wasco, CA 93280, California 93263, approximately 7.8 miles (at the closest point) northeast of the proposed Project site. The proposed Project does not involve the development of housing which could place residents within an area associated with a safety hazard or excessive noise regarding an airport's operations. Further, the proposed Project site is not located within any safety or noise contour zones for these airports or within any designated airport land use plan areas. Safety hazards are not anticipated for people working at the Project site with respect to the proposed Project's proximity to an airport.

Midway Substation Upgrades

As described above in Impact 4.9-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation.

The nearest public airport to the Midway Substation site is the Elk Hills – Buttonwillow Airport, located at Buttonwillow, California, approximately 3.5 miles south/southwest of the proposed Project site. The Midway Substation site is not located within any safety or noise contour zones for the Elk Hills – Buttonwillow Airport or any other airport and is not within a designated airport land use plan area.

Summary

The proposed Project is not located within any safety or noise contour zones for airports or within any designated airport land use plan areas. Therefore, there would be no impact.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Not applicable—no impacts would occur.

Impact 4.9-6: Would the Project impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?

The Project site is located within proximity to identified emergency evacuation routes associated with the evacuation plan for potential Lake Isabella Dam Failure (adopted December 2009). Based on the plan, a dam failure would result in flooding the Kern Canyon (Kern River) and greater Bakersfield area, which would include an evacuation of 260,000 people with the largest group of evacuees having access to a vehicle (KCFD 2009). Evacuation routes within the vicinity of the proposed Project include traveling along the I-5.

Depending on the destination within the proposed Project site, Wasco Way, Merced Avenue, Lerdo Highway, Rowlee Road, Wildwood Road, Riverside Street, Burbank Street, Buttonwillow Drive, 7th Standard Road, Snow Road, State Route 58 (SR-58), and Sullivan Road would provide access to the proposed Project site. The Project site is located near I-5 that would provide adequate access in the event of an emergency. All access on the existing road networks would be maintained throughout construction. Therefore, the development of the proposed Project would not physically interfere with emergency vehicle access or personnel evacuation from the site.

Operation of the proposed Project would not substantially increase road usage given that 20 full-time equivalent (FTE) personnel would commute to the site. As further described in Section 4.15, *Transportation*, of this Draft EIR, increased Project-related traffic would not cause a significant increase in congestion or significantly worsen the existing service levels at intersections on area roads. The roadway segments evaluated for the proposed Project are shown to operate at LOS A, acceptable average daily traffic volume-to-capacity conditions under existing as well as under near-term (2027) conditions, with and without the Project-added traffic. Therefore, Project-related traffic would not affect emergency access to the Project site or any other surrounding location. The proposed Project would not require closures of public roads, which could inhibit access by emergency vehicles. Controlled access gates would be maintained at the main entrances to the Project site. Access to the Project site would be provided to off-site emergency response teams that respond in the event of an "after-hours" emergency. Enclosure gates would be manually operated with a key provided in an identified key box location.

Because construction and operation of the proposed Project would not cause any material changes to the road networks and the relatively small number of employees that would be part of ongoing project operations, the potential impacts related to emergency response and evacuation plans would be less than significant.

Midway Substation Upgrades

As described above in Impact 4.9-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation.

I-5 and SR-58 would provide emergency access to, and evacuation from, the Midway Substation site. These roadways would provide adequate access and/or evacuation routes in the event of an emergency. As is the case for construction at other areas of the Project site, access on existing road networks would be maintained throughout construction. Therefore, the development of the Midway Substation site would not physically interfere with emergency vehicle access or personnel evacuation from the site.

Operation of the Midway Substation upgrades would not substantially increase personnel or substantially increase road usage and, therefore, Project-related traffic would not affect emergency access to the Project site or any other surrounding location. The Midway Substation upgrades would not require closures of public roads, which could inhibit access by emergency vehicles and all accessways to the Midway Substation site must comply with KCFD-enforced access standards.

Summary

Given that the proposed Project would not cause any material changes to the road networks and/or employee trips, potential impacts related to emergency response and evacuation plans would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Less than significant.

Impact 4.9-7: Would the Project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

The Project site is not located within a high fire hazard severity zone (CAL FIRE 2025); see Section 4.18, *Wildfire*. According to the CalFire, Kern County FHSZ Maps for the LRAs, some portions of the Project site are within an LRA Moderate zone (CAL FIRE 2025). Moderate zones are typically wildland supporting areas of low fire frequency and relatively modest fire behavior. An area that

does not have a designation indicates that it is urbanized and not susceptible to wildland conflagrations. However, there is still a potential risk of wildfire.

The proposed Project would include PV facilities and BESSs that do not catch fire easily but can burn or become damaged by fire and generate fumes and gases that are extremely corrosive. The BESS solutions would consist of commercially available lithium-ion based or non-lithium ion-based storage technologies. Lithium-ion batteries can fail by "thermal runaway" where overheating in a single faulty cell can propagate to neighbors with energy releases popularly known as "battery fires" (Fordham et al. 2021). Thus, because the Project proposes the installation of BESS solutions that may use lithium-ion based storage technologies, the potential for battery fires exists. Additionally, equipment for project components would include electrical wiring, which may be a potential ignition source. Equipment would be installed in accordance with applicable standards and regulations, and facility maintenance would include the inspection, replacement, and repair of wiring. Therefore, the potential for fires due to electrical wiring is low. Dry chemical, carbon dioxide, and foam are the preferred methods for extinguishing a fire involving batteries as water is not useful in extinguishing battery fires.

As discussed further in Section 4.14, *Public Services*, of this Draft EIR, the Project proponent would implement Mitigation Measure MM 4.14-1, which would require the preparation and submittal of a Fire Safety Plan to the KCFD for review and approval. The purpose of the Fire Safety Plan would be to eliminate causes of fire, prevent loss of life and property by fire, to comply with County and County Fire Protection District standards for solar facilities, and to comply with the OSHA standard of fire prevention (29 CFR 1910.39). The Fire Safety Plan would address fire hazards of the different components of the proposed Project, including the BESSs, and would include BMPs to reduce the potential for fire and provide extinguishment techniques if a fire were to occur. Additionally, the proposed Project would mount systems for the modules on steel support posts that would be pile driven into the ground and would therefore comply with the ground-mounted requirements of this fire prevention standard.

Midway Substation Upgrades

As described above in Impact 4.9-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation.

The Midway Substation site is not located within a high fire hazard severity zone (CAL FIRE 2025). However, equipment to be installed as part of the Midway Substation upgrades would include electrical wiring, which may be a potential ignition source which could cause a fire that could spread to wildlands. Risks of fire would be reduced by installing equipment in accordance with applicable standards and regulations, and facility maintenance activities that would include the inspection, replacement, and repair of wiring and other electrical equipment.

As discussed further in Section 4.14, *Public Services*, of this Draft EIR, PG&E should implement Mitigation Measure MM 4.14-1, which would require the preparation and submittal of a Fire Safety Plan to the KCFD for review and approval. The purpose of the Fire Safety Plan would be to eliminate causes of fire, prevent loss of life and property by fire, to comply with County and County Fire Protection District standards for solar facilities, and to comply with the OSHA standard of fire prevention (29 CFR 1910.39). The Fire Safety Plan would address fire hazards of the different components of the Midway Substation upgrades. Further, PG&E has adopted BMPs (Appendix M of this Draft EIR) that apply to all PG&E construction projects which would avoid or further mitigate impacts associated with wildfire hazards (for example, BMPs 24 through 27).

Summary

Therefore, the proposed Project has the potential to create a significant impact regarding hazards associated with wildfire; however, Mitigation Measure MM 4.14-1 would require implementation of a fire safety plan for construction and operation of the proposed Project, and would reduce the impact to a less-than-significant level.

Mitigation Measures

Implement Mitigation Measure MM 4.14-1 (see Section 4.14-1, *Public Services*, for full text).

Level of Significance after Mitigation

Less than significant.

Impact 4.9-8: Would implementation of the Project generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural waste? Specifically, would the Project exceed the following qualitative threshold? Would the presence of domestic flies, mosquitoes, cockroaches, rodents, and/or any other vectors associated with the Project be significant when the applicable enforcement agency determines that any of the vectors:

i. Occur as immature stages and adults in numbers considerably in excess of those found in the surrounding environment; and

ii. Be associated with design, layout, and management of project operations; and

iii. Disseminate widely from the property; and

iv. Cause detrimental effects on the public health or well-being of the majority of the surrounding population?

Project-related infrastructure would not result in features or conditions that could potentially provide habitat for vectors, such as moving earth that would consequently create retention basins

and ponded water. Project waste may include scrap metal and concrete, empty non-hazardous containers, vegetation waste, food waste from workers, wood, glass, paper, plastics, other forms of solid waste that could result in standing water, trash piles, or open containers that could provide breeding conditions for mosquitoes, flies, or rodents. These wastes would be segregated, where practical, for recycling and nonrecyclable wastes such as food scraps would be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill. Proper management of these potential harborage areas would ensure the proposed Project would not produce excessive wastes, standing water, or other features that would attract nuisance pests or vectors. Therefore, impacts would be less than significant.

Midway Substation Upgrades

As described above in Impact 4.9-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation.

The Midway Substation upgrades would not result in features or conditions that could potentially provide habitat for vectors. Similar to other components of the proposed Project, waste from Midway Substation upgrades may include scrap metal and concrete, empty non-hazardous containers, vegetation waste, food waste from workers, wood, glass, paper, plastics, other forms of solid waste that could result in standing water, trash piles, or open containers that could provide breeding conditions for mosquitoes, flies, or rodents. These wastes would be segregated, where practical, for recycling and nonrecyclable wastes such as food scraps would be placed in covered dumpsters and removed on a regular basis by a certified waste-handling contractor for disposal at a Class III landfill.

Summary

The proposed Project does not include features or conditions that could potentially provide habitat for vectors. Further, proper disposal of waste, recycling of materials, and management of waste disposal areas would ensure the proposed Project would not produce excessive wastes, standing water, or other features that would attract nuisance pests or vectors. Therefore, impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Less than significant.

4.9.5 Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

As described in Chapter 3, *Project Description*, multiple projects, including several utility-scale solar production facilities, are proposed throughout Kern County. As shown in **Table 3-4:** *Cumulative Project List*, other solar energy projects are operational, in construction, or proposed within the region. The geographic scope of impacts associated with hazardous materials generally encompasses the project sites and a 0.25-mile-radius area around the Project site. A 0.25-mile-radius area allows for a conservative cumulative analysis that ensures that all potential cumulative impacts will be assessed. Similar to other potential impacts, such as those related to geology and soils, risks related to hazards and hazardous materials are typically localized as they tend to be related to on-site existing hazardous conditions and/or hazards caused by the project construction or operation. A geographic scope of a 0.25-mile-radius area also coincides with the distance used to determine whether hazardous emissions or materials would have a significant impact upon an existing or proposed school, as discussed above.

Impacts regarding the handling, use, and/or storage of hazardous materials would be project specific and would not cumulatively contribute to impacts. An accident involving a hazardous material release during project construction or operation through upset or accident conditions including site grading and the use and transport of petroleum-based lubricants, solvents, fuels, batteries, herbicides, and pesticides to and from the Project site would be location specific. The closest cumulative project to the Project site is for a Condition Use Permit for an RV Park, 23-00916, located approximately 300 feet west of Lerdo Highway and Rowlee Road. Conformance with existing state and County regulations, as well as the implementation of Mitigation Measures MM 4.9-1 and MM 4.9-2, would reduce cumulative impacts by ensuring proper handling of hazardous materials and herbicides by the proposed Project. In addition, implementation of appropriate safety measures during construction of the proposed Project, as well as other cumulative projects, would reduce the impact to a level that would not contribute to cumulative effects. Given the minimal risks of hazards at the Project site, cumulative impacts are unlikely to occur. Therefore, the proposed Project would not make a cumulatively considerable contribution to a significant cumulative impact related to the handling, use, and/or storage of hazardous materials.

Hazardous materials to be used during decommissioning and removal activities are of low toxicity and would consist of fuels, oils, and lubricants. Because these materials are required for operation of construction vehicles and equipment, BMPs as part of a SWPPP per Section 4.10, *Hydrology and Water Quality*, would be implemented to reduce the potential for or exposure to accidental spills or fires involving the use of hazardous materials. Impacts from minor spills or drips would be avoided by thoroughly cleaning up minor spills as soon as they occur. Conformance with existing state and County regulations, including implementation of BMPs as part of a SWPPP, as discussed in Section 4.10, *Hydrology and Water Quality*, as well as implementation of Mitigation Measures MM 4.9-1 through MM 4.9-3, and Mitigation Measure MM 4.14-1, of Section 4.14, *Public Services*, (Fire Safety Plan), would further reduce the potential for cumulative impacts. In

addition, implementation of appropriate safety measures during construction of the proposed Project would result in impacts that are not cumulatively considerable. Therefore, the project would not make a cumulatively considerable contribution to a significant cumulative impact related to an upset or accident involving the release of hazardous materials.

Ongoing project maintenance and operations would comply with applicable existing codes and ordinances related to the maintenance of mechanical equipment, handling and storage of flammable materials, and cleanup of spills of flammable materials. As discussed further in Section 4.14, *Public Services*, of this Draft EIR, the Project proponent would implement Mitigation Measure MM 4.14-1, which would require the preparation and submittal of a Fire Safety Plan to the KCFD for review and approval. The Fire Safety Plan would address fire hazards of the different components of the proposed Project, including the BESSs, and would include BMPs to reduce the potential for fire and provide extinguishment techniques if a fire were to occur.

While construction, operation, or decommissioning of the project are not anticipated to significantly increase the risk of wildfire, required Mitigation Measure MM 4.14-1 (see Section 4.14, *Public Services*) would be implemented to require the development and implementation of a fire safety plan for construction, operation, and decommissioning of the proposed Project. In a wildfire event, it is anticipated that any employees occupying the site during project construction or operation would be rapidly evacuated in conformance with applicable County evacuation directives put in place. Such measures would ensure that the exposure of project occupants to the risk of injury or death from wildfire would be minimized to the extent feasible. Similarly, local residents would be evacuated from the surrounding communities as needed to ensure public safety. Although impacts would be less than significant without mitigation, Mitigation Measure MM 4.14-1 would further reduce the potential for the proposed Project to expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires. Therefore, development of the proposed Project not would not make a cumulatively considerable contribution to a significant cumulative impact related to significant risk related to wildfire. As discussed above, although multiple sites within the Project site were identified in California hazardous materials databases, none of these listings are likely to impact the environmental conditions of the Project site (Appendix H.2). As such, development of the proposed Project would not create a significant hazard to the public or environment and would not make a cumulatively considerable contribution to a significant cumulative impact related to facilities included in California hazardous materials databases.

The project sites are not located within an airport land use plan influence area; therefore, the proposed Project would not contribute to a cumulative impact regarding hazards associated with airports, air traffic, or non-compliance with an airstrip land use plan.

The proposed Project is located near evacuation routes associated with the Lake Isabella Dam Failure evacuation plan, as it is proximal to I-5, however, access roads to the Project site would not impede travelers along the I-5 evacuation route. The 20-FTE personnel would not affect emergency access. Other projects would be required to reduce the potential impairment of an emergency response plan or emergency evacuation route.

As discussed above, the nearest school to the proposed Project is Buttonwillow Elementary School, located approximately one mile southwest of the Project site. Given this distance, Project-related infrastructure would not emit hazardous materials or involve handling hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school, and impacts would be less than significant. Given that the proposed Project is not in proximity to a school, cumulative impacts are unlikely to occur. Therefore, impacts would not be cumulatively significant. Furthermore, Mitigation Measures MM 4.9-1, MM 4.9-2, and MM 4.14-1 are similar to existing regulatory requirements to which other projects would be required to adhere and would further reduce the potential for hazardous material-related impacts to schools located within the area.

The proposed Project would not adversely affect public health. Waste would be disposed appropriately, resulting in less harborage areas for vectors. Other projects would be required to properly manage waste and retention basins during project construction and operations to ensure that there is limited materials that could be utilized as harborage or habitat for vectors.

Midway Substation Upgrades

As described above in Impact 4.9-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation.

As is the case for the development and operation of other features of the proposed Project, impacts regarding the handling, use, and/or storage of hazardous materials at the Midway Substation site would be project specific and would not cumulatively contribute to impacts. An accident involving a hazardous material release during project construction or operation through upset or accident conditions including site grading and the use and transport of petroleum-based lubricants, solvents, fuels, batteries, herbicides, and pesticides to and from the Midway Substation site would be location specific. Further, conformance with existing state and County regulations, as well as the implementation of Mitigation Measures MM 4.9-1 and MM 4.9-2, would reduce cumulative impacts by ensuring proper handling of hazardous materials and herbicides at the Midway Substation site. These measures would be complemented by implementation of safety measures during construction.

Hazardous materials to be used during decommissioning and removal activities are of low toxicity and would consist of fuels, oils, and lubricants. Because these materials are required for operation of construction vehicles and equipment, BMPs as part of a SWPPP per Section 4.10, *Hydrology and Water Quality*, would be implemented to reduce the potential for, or exposure to, accidental spills or fires involving the use of hazardous materials. Impacts from minor spills or drips would be avoided by thoroughly cleaning up minor spills as soon as they occur. Conformance with existing state and County regulations, including implementation of BMPs as part of a SWPPP, as discussed in Section 4.10, *Hydrology and Water Quality*, as well as implementation of Mitigation Measures MM 4.9-1 through MM 4.9-3, and Mitigation Measure MM 4.14-1, of Section 4.14,

Public Services, (Fire Safety Plan), would further reduce the potential for cumulative impacts. In addition, implementation of appropriate safety measures during construction of the Midway Substation upgrades would result in impacts that are not cumulatively considerable.

The Midway Substation site is not located within a high fire hazard severity zone (CAL FIRE 2025). Regardless, as discussed further in Section 4.14, *Public Services*, of this Draft EIR, PG&E should implement Mitigation Measure MM 4.14-1, which would require the preparation and submittal of a Fire Safety Plan to the KCFD for review and approval. Further, PG&E has adopted BMPs (Appendix M of this Draft EIR) that apply to all PG&E construction projects which would avoid or further mitigate impacts associated with wildfire hazards (for example, BMPs 24 through 27).

The Midway Substation site is not located within an airport land use plan influence area and, therefore, the Midway Substation upgrades would not contribute to a cumulative impact regarding hazards associated with airports, air traffic, or non-compliance with an airport land use plan.

The Midway Substation site is located near evacuation routes (for example, I-5) associated with the Lake Isabella Dam Failure evacuation plan; however, the Midway Substation upgrades are not anticipated to increase the number of employees at the site and, consequently, would not contribute to cumulative impacts involving emergency access or evacuation.

The Midway Substation site is located approximately 6.3 miles from Buttonwillow Elementary School (that is, the closest school to the Midway Substation site) and, therefore, would not contribute to a cumulative impact regarding the emission of hazardous materials or handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school.

As described in Impact 4.9-7, PG&E should ensure that waste is managed and appropriately disposed to avoid creating harborage areas or habitat for vectors. Other projects would be required to properly manage waste and retention basins during project construction and operations to ensure that there are limited materials that could be utilized as harborage or habitat for vectors.

Summary

With the implementation of Mitigation Measures MM 4.9-1 through MM 4.9-3, and Mitigation Measure MM 4.14-1, the proposed Project would not make a cumulatively considerable contribution to a significant cumulative impact involving hazards and/or hazardous materials.

Mitigation Measures

Implement Mitigation Measures MM 4.9-1 through MM 4.9-3, and Mitigation Measure MM 4.14-1 (see Section 4.14-1, *Public Services*, for full text).

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

Section 4.10

Hydrology and Water Quality

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Section 4.10
Hydrology and Water Quality

4.10.1 Introduction

This section of the Draft Environmental Impact Report (EIR) describes the affected environment and regulatory setting regarding hydrology and water quality. It also addresses potential impacts of the proposed Buttonbush Solar and Storage Project (proposed Project) regarding hydrology and water quality, and identifies mitigation measures that would reduce impacts, where applicable.

This section is informed by the *Aquatic Resources Delineation Report* (Dudek 2025a; Appendix D.4) and *Water Supply Assessment* (Dudek 2025b; Appendix I.2) prepared by Dudek, as well as by the *Preliminary Hydrology Study* prepared by Westwood (Westwood 2025; Appendix I.1).

4.10.2 Environmental Setting

Regional Setting

The Project site overlies the San Joaquin Valley Groundwater Basin – Kern County Subbasin (California Department of Water Resources [DWR] Basin No. 5-022.14). By land area, the Kern County Subbasin is the largest groundwater Subbasin in California and covers approximately 1.8 million acres of the southern San Joaquin Valley, and shares boundaries with four other groundwater subbasins. To the north are Tulare Lake Subbasin (DWR Basin 5-022.12), Tule Subbasin (DWR Basin 5-022.13), and Kettleman Plain Subbasin (DWR Basin 5-022.17), and to the south is the White Wolf Subbasin (DWR Basin 5-022.18). It is bounded on the west, southwest, and east by the bedrock formations of the coast range, San Emigdio Mountains, and Sierra Nevada, respectively.

The Project site is located in the West Side Canal, Goose Lake Slough-Jerry Slough, and Lower Poso Creek watersheds which are contained within the Tulare Lake Bed and Upper Poso hydrologic subbasins. The Kern River and Poso Creek are the two main non-anthropogenic surface water ways that flow into the Subbasin, both of which originate in the Sierra Nevada. The Kern River is located over 8 miles southeast of the Project site and Poso Creek is located more than 12 miles northeast.

Tulare Lake Hydrologic Region

DWR has organized the state into 10 Hydrologic Regions. As stated above, the Project site is located within the Tulare Lake Hydrologic Region. The Tulare Lake Hydrologic Region comprises the drainage area of the San Joaquin Valley south of the San Joaquin River encompassing approximately 16,800 square miles and includes Kings, Tulare, Fresno, and Kern counties, as displayed in **Figure 4.10-1:** *California Department of Water Resources Designated Groundwater Basins and Subbasins*. The Hydrologic Region is ranked as "high priority" by DWR pursuant to

the Sustainable Groundwater Management Act (SGMA), in the statewide ranking of groundwater importance.

Kern County Groundwater Subbasin

The Project site is located within the Kern County Subbasin (Subbasin), for which the Kern Groundwater Authority (KGA) is the principal groundwater management agency. The Subbasin is the specific groundwater subbasin in which the proposed Project resides and has a surface area of approximately 2,785 square miles (1,782,400 acres) (Dudek 2025b).

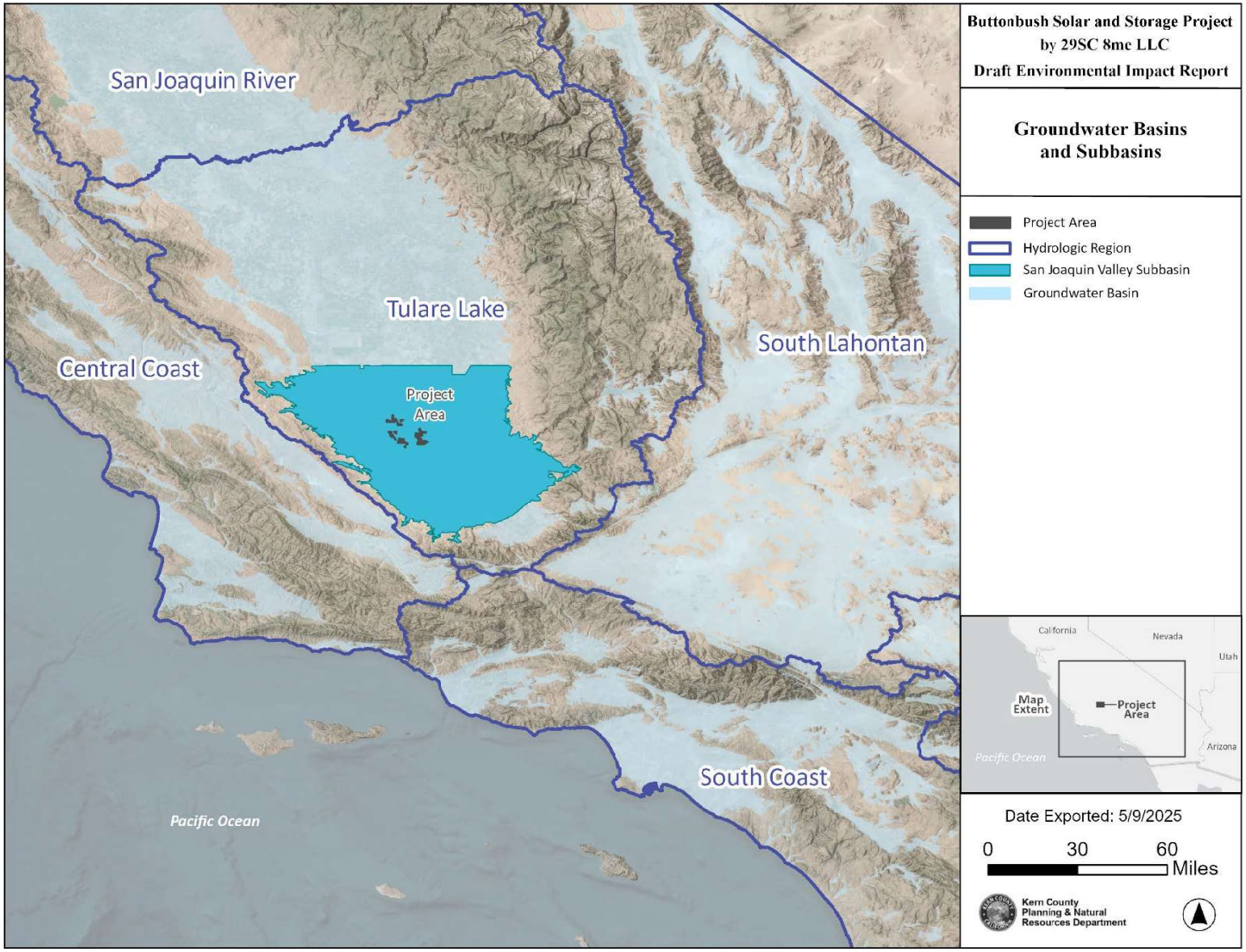
The San Joaquin Valley represents the southern portion of the Great Central Valley of California. The San Joaquin Valley is a structural trough that is up to 200 miles long and 70 miles wide and filled with up to 32,000 feet of marine and continental sediments deposited during periodic inundation by the Pacific Ocean and by erosion of the surrounding mountains, respectively. Continental deposits shed from the surrounding mountains forming an alluvial wedge that thickens from the valley margins toward the axis of the structural trough. This depositional axis is slightly west of the series of rivers, lakes, sloughs, and marshes that mark the current and historic axis of surface drainage in the San Joaquin Valley. Water bearing formations in the Subbasin are found in the shallow to intermediate depths of the groundwater Subbasin and are primarily continental deposits of Tertiary and Quaternary age.

The Project site is located in the western portion of the Subbasin within the Semitropic Hydrologic Area (558.70) and the Kern Delta Hydrologic Area (557.10), where croplands and orchards dominate the relatively flat valley floor. The water bearing unit is the Tulare Formation, which contains up to 2,200 feet of interbedded, oxidized soils to reduced sands, and gypsiferous clays and gravels derived predominantly from Coast Range sources. The Tulare-Buena Vista Lakes (HUC6 180300) watershed includes the following subunits: West Side Canal, Goose Lake Canal, Goose Lake Slough-Jerry Slough, and Lower Poso Creek. This area includes human-made features (canals and ditches), streams, rivers, freshwater ponds, and freshwater emergent wetlands (USFWS 2023).

DWR has identified the Subbasin as a “critically overdrafted basin.” Current baseline conditions estimate an average annual overdraft of 324,326 acre-feet per year (AFY) in the Subbasin, with the KGA accounting for approximately 256,281 AFY of this deficit. However, it is projected that the subbasin will achieve sustainability by 2040, with an estimated surplus of 42,144 AFY with proposed projects and management actions (KGA 2022).

Numerous ongoing projects aim to enhance surface water supply and groundwater banking in the region. Measures have been developed in the Subbasin to capture and transport wet-year surface water for groundwater recharge and to offset groundwater pumping, preparing the basin for dry periods when surface water may be scarce. Conjunctive use programs and projects such as interties, pipelines, and recharge basins have been developed, financed, and implemented by districts within the Subbasin to deliver, bank, and return surface water, as well as replenish aquifers. These efforts are designed to better prepare for, and manage, water supplies during dry periods when beneficial uses are more dependent on groundwater (KGA 2022).

Figure 4.10-1: California Department of Water Resources Designated Groundwater Basins and Subbasins



Climate

Climate in the region is characterized as arid to semi-arid with average annual precipitation of 5.64 inches per year, most of which falls between November and April. According to the Western Regional Climate Center (RCC) the highest average rainfall occurs in February and averages 1.07 inches (WRCC 2023). Annual temperatures range from 34 degrees Fahrenheit (°F) in the winter to 98°F in the summer, with an average annual temperature range of 49°F to 78°F (WRCC 2023). Winter is generally mild, but an occasional freeze does occur and may cause substantial agricultural damage. Summers are characterized as dry with high temperatures and low humidity.

A "water year" in California runs from October 1 to September 30 of the following year. California typically receives 50 percent of its precipitation in the months of December, January, and February in the form of snow in the Sierras. The snowpack in the Sierras typically stores water throughout the winter months and then releases it beginning in the spring.

Topography and Hydrology

The major topographic feature in the region is the southern San Joaquin Valley, where the topography is generally flat. Steeper, mountainous topography is present in the Tehachapi and Sierra Nevada Mountains to the east, the San Emigdio Mountains to the south, and the Coast Range Mountains to the west.

The hydrology of the Subbasin has been extensively modified over the last 150 years by irrigation, flood control, and land reclamation. Dams and reservoirs have been constructed on all the large rivers that drain into the Basin for flood control, water supply, and hydroelectric generation. State, federal, local, and privately owned water conveyance facilities, such as aqueducts, pipelines, ditches, and canals, have also been constructed throughout the region to facilitate the movement of water into, and out of, the Basin.

The Kern River is the southernmost of the four major rivers in the Basin and is the major surface water feature in the Kern River Basin, flowing from the Sierra Nevada in the northeast to the Central Valley in the southwest. The riverbed extends through urban Bakersfield and is typically dry except during storm events and under wet hydrologic conditions when water is released upstream from Lake Isabella for flood management or local water banking purposes. Lake Isabella was created by a dam completed by the U.S. Army Corps of Engineers (USACE) in 1953. The Lake Isabella dam consists of the main dam and an auxiliary dam, which are located 2,000 feet apart. The dam is 33 miles east of the valley floor at the junction of the mainstem and south fork of the Kern River. The main earthfill dam is 185 feet high and 1,725 feet long, and the auxiliary earthfill structure is 100 feet high and 3,275 feet long. The gross storage capacity of both dams is 568,100 acre-feet. The total capacity may be operated to control snowmelt floods. As discussed in the next section, the USACE manages the dam to reduce potential structural failure risks during an ongoing safety modification program that the USACE substantially completed in 2022 (USACE 2023).

From the Lake Isabella dam, the Kern River flows southwest until it emerges from a deep canyon northeast of Bakersfield. Water flowing from the canyon is diverted into canals by several weirs for use in Bakersfield. During wetter conditions, surface water is released downstream for

groundwater recharge operations. Depending on the amount and timing of rainfall and snowmelt, surface water from the Kern River that is not diverted or used for groundwater recharge may ultimately flow into the Buena Vista lakebed, the Kern River Intertie, and the California Aqueduct, or north toward the historical Tulare Lake Basin via the flood canals. The westerly portions of the Kern River and several of the diversion, recharge, and flood facilities that capture or convey river flows are located within the region.

Poso Creek is located to the north of the Kern River and intermittently conveys rainfall and snowmelt from the Greenhorn Mountains to the valley floor. The creek flows west through the region and terminates at the federally owned Kern National Wildlife Refuge in the northwest portion of the county. The primary constructed water conveyance facilities in the region are: (1) federally owned and operated facilities associated with the Central Valley Project, including the Friant-Kern Canal which transports water from Sierra Nevada streams, the Sacramento Delta, and other sources to Kern County; and (2) facilities associated with the California owned and operated State Water Project (SWP), including portions of the California Aqueduct, which transport water south to Kern County and other locations from the Sacramento Delta. Major groundwater recharge and storage facilities include the 30-square-mile Kern Water Bank, owned and operated by the Kern Water Bank Authority, the Pioneer Project (owned by the Kern County Water Agency), and storage and banking facilities that several incorporated water districts in the region own and operate.

Project Area Setting

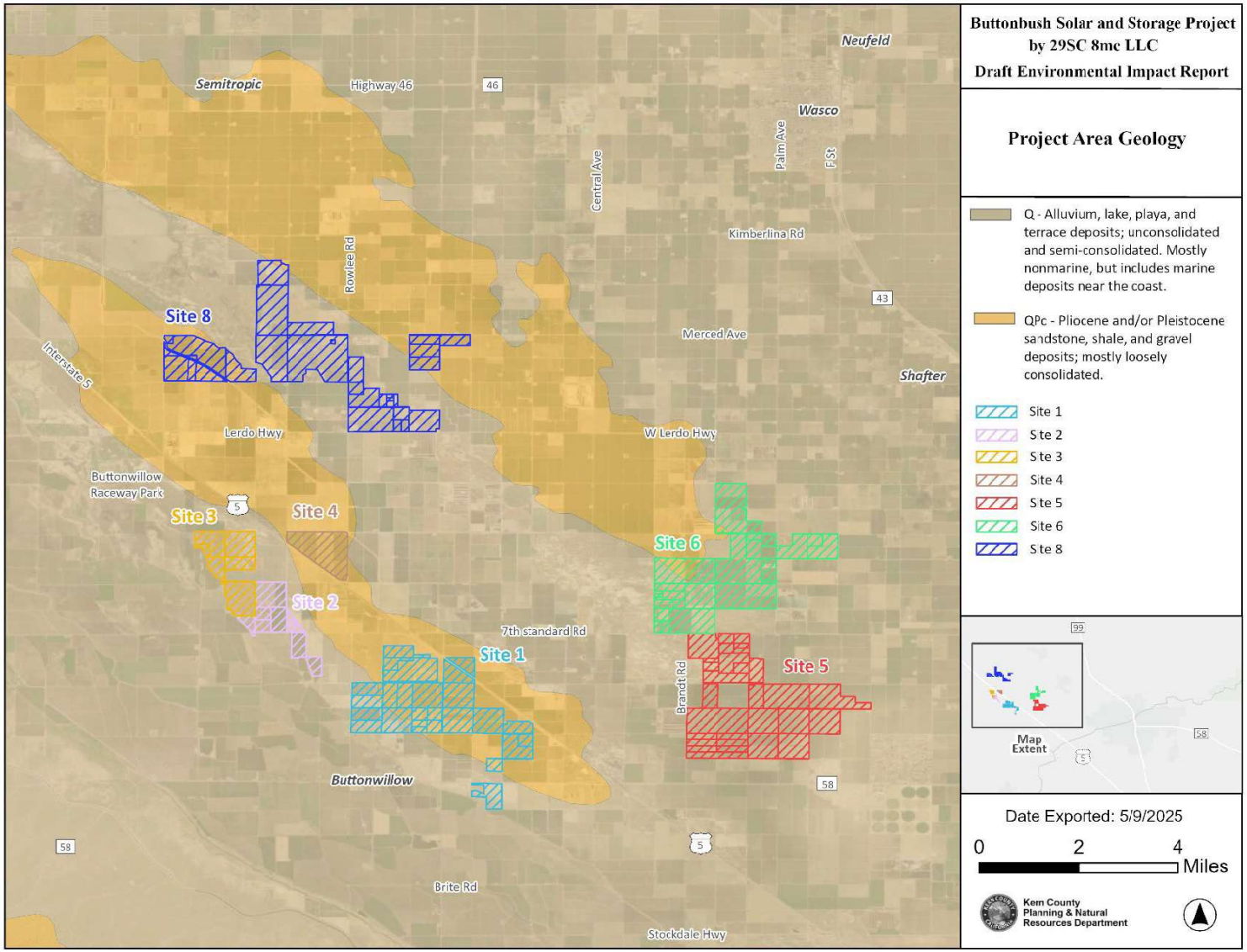
Hydrogeology

The proposed Project is located on Lower West Side Canal, Jerry Slough, 180300040401, Upper West Side Canal, Town of Saco, and Town of Shafter HUC 12 Boundaries. The Subbasin underlying the proposed Project site is located in a structural trough filled with tens of thousands of feet of marine and continental sediments. The water bearing formations within the Subbasin include the Olcese and Santa Margarita Formations, the Tulare Formation, the Kern River Formation, and alluvial and flood deposits (DWR 2006). These formations are known to be many thousands of feet thick (DWR 2006; KGA 2022).

The Project site is underlain with Tertiary and Quaternary Pliocene-Pleistocene non-marine sedimentary rocks consisting of loosely consolidated sandstone, shale, and gravel deposits and younger alluvial and flood deposits. Additionally, Corcoran Clay, a regional fine-grained clay deposit of lacustrine origin, underlies much of the Project site (**Figure 4.10-2:** *Project Area Geology*). The Corcoran Clay restricts vertical and lateral groundwater flow in the Subbasin, where it exists, by various faults, folds, bedrock contacts, and angular unconformities (DWR 2006).

Major restricting structures include the Edison fault, Pond-Poso fault, White Wolf fault, and the Elk Hills and Buena Vista Hills folds (DWR 2006). The Corcoran Clay separates the upper unconfined aquifer from the lower confined aquifer (DWR 2006). The majority of groundwater production wells in the Project site source water from the confined aquifer below depths of approximately 300 to 400 feet below ground surface (bgs) (SWSD 2019).

Figure 4.10-2: Project Area Geology



Surface Water Resources and Quality

The Project site is relatively flat throughout, with elevations ranging from approximately 250 feet above mean sea level in the northwest to approximately 320 feet above mean sea level in the southeast. The primary drainage within the Project site is from ditches, most of which do not connect to other surface water bodies including those under regulatory jurisdiction of the Central Valley Regional Water Quality Control Board (RWQCB). The only creek, stream, or river in the vicinity of the Project site is the Jerry Slough, an intermittent drainage that flows through the middle of the northern portion of the Project site. Other surface water features in the Project site consist of artificial conveyances and include the California Aqueduct, East Side Canal, Main Canal, and several other canals. The California Aqueduct is located approximately 4 miles west of the Project site. There are several isolated, meandering channels within the undeveloped areas (that is, outside of agricultural areas), channels that appear to be modified and connect to isolated wetlands, and ponded areas. As part of the requirements of the Clean Water Act (CWA), beneficial uses for surface and ground waters must be identified in the RWQCB's Tulare Lake Basin Water Quality Control Plan (Basin Plan). Jerry Slough was not identified in the 2018 Basin Plan. Therefore, there are no surface water beneficial uses associated with the Project site.

Groundwater Resources and Quality

Non-anthropogenic groundwater recharge within the Subbasin is primarily from stream seepage along the eastern Subbasin and the Kern River and precipitation. Anthropogenic recharge occurs from irrigation of agricultural areas. Recharge near the Project site occurs through managed and unmanaged recharge through spreading basins, unlined channels, and waterways (SWSD 2019). Topography is relatively flat with elevations ranging from approximately 250 feet above mean sea level in the northwest to approximately 320 feet above mean sea level in the southeast, and water typically flows downslope throughout the Project site. Subsurface geology effectively impedes any non-anthropogenic source of groundwater supply in the Project site. The majority of groundwater production wells in the Project site source water from the confined aquifer below depths of approximately 300 to 400 feet below ground surface.

Based on the Dudek prepared Water Supply Assessment (WSA) (Dudek 2025b), there are approximately 223 wells within a two-mile radius of the Project site, including 21 public supply wells, 10 observation wells, 13 irrigation wells, and 179 other/unknown wells. Of these, 28 wells are located on-site, with well logs for three indicating depths between 600 and 878 feet. The Subbasin holds an estimated 40 million acre-feet (AF) of groundwater, with a sustainable yield of about 1,313,000 AFY and a native yield of approximately 259,520 AFY. Groundwater levels in the Subbasin generally decline during dry years and rise during wet years, though trends vary locally (DWR 2006). From 1970 to 2000, average groundwater levels remained stable, but have steadily declined since 2000, reaching historical lows recently (SWSD 2019). In the Project site, groundwater levels fluctuate with climatic conditions and imported water availability, currently ranging from 140 to 345 feet below ground surface and varying seasonally by 10 to 20 feet. Despite reaching historical lows during the 2012–2016 drought, levels have remained relatively stable since 2016.

Groundwater in the eastern part of the Subbasin has primarily calcium bicarbonate in shallow zones, increasing in sodium with depth, while in the western part, it has sodium sulfate and calcium-sodium sulfate. Key groundwater quality concerns include arsenic, nitrate, boron, hexavalent chromium, total dissolved solid (TDS), sodium, chloride, Dibromochloropropane, and 1,2,3-Trichloropropane. TDS concentrations vary from 150 to 5,000 mg/L, averaging around 425 mg/L (DWR 2006). Elements like arsenic, boron, and hexavalent chromium are present, with higher concentrations of nitrate, TDS, sodium, and chloride in areas affected by human activity. Synthetic chemicals such as Dibromochloropropane and 1,2,3-Trichloropropane, historically used in agriculture and industry, remain in some areas (SWSD 2019; KGA 2022). The highest concentrations of these constituents are found along the Subbasin's axial trough, from Arvin to McFarland, with elevated arsenic in regions with lakebed deposits or Corcoran Clay (DWR 2006; KGA 2022). Groundwater quality in the Project site is generally good to excellent, with TDS levels between 100 and 350 mg/L, higher towards the western boundary. Sodium, chloride, and arsenic are found in higher levels in the upper unconfined aquifer compared to the lower confined aquifer below the Corcoran Clay (SWSD 2019).

Imported Water

The Project vicinity primarily receives its imported water supply from the SWP, which is the largest state-owned water system in the U.S., spanning over 705 miles and two-thirds the length of California. Managed by the DWR, the SWP ensures adequate water supplies under various hydrologic conditions. It sources water from Northern California rivers, reservoirs, and the Sacramento-San Joaquin River Delta, delivering it to 750,000 acres of farmland and 27 million people in Central and Southern California. The SWP contractors, comprising 29 public entities, have long-term contracts with DWR for their water needs. SWP deliveries include Table A, Article 21, carryover, and turnback pool water. Table A allocations are based on each contractor's share of the SWP's maximum delivery capacity of up to 4,172,786 AFY. Article 21 water is additional short-term water available in wet years, while carryover water is unused Table A water stored for future use. Turnback pool water is excess Table A water sold to other contractors. The reliability of SWP water delivery depends on factors like rainfall, snowpack, reservoir storage, SWP facilities' pumping capacity, and legal/regulatory restrictions. The 2023 allocation is 100 percent of Table A water (DWR 2023).

Soil Types and Erosion

Erosion and sedimentation are processes driven by surface runoff that can be accelerated by human activities, such as construction earthwork activities. During construction, removal of vegetation or impervious areas (for example, concrete or asphalt) expose soils to precipitation and surface runoff and can accelerate surface soil erosion. The process may result in loss of topsoil and creation of erosional features including rills and gullies. Erosion potential is determined by four principal factors: the characteristics of the soil, the extent of vegetative cover, topography, and climate. Soil texture and permeability determine the resistance of soil to entrainment by surface runoff. Vegetative cover plays a critical role in controlling erosion by shielding and binding the soil. Slope influences the rate of runoff and is directly correlated with erosion potential where flatter

topography has a much lower potential for erosion. The intensity and duration of rainfall determines the extent and the capacity for flowing water to detach and transport soil particles.

Excessive erosion can cause a loss of land or possibly increase flooding. Increased sedimentation can also restrict storm drains and channels and lead to flooding during storms that the drainage system should capably handle. In addition, development can increase the likelihood of erosion and sedimentation along unlined drainage channels because of increased stormwater flows.

Soil conditions for the Project site were evaluated in the *Aquatic Resources Delineation Report* (Dudek 2025a) using maps prepared by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). **Table 4.10-1:** *Project Site Soil Types*, lists the soil series found within the Project site according to the NRCS. The site consists primarily of soils in the Garces series, Milham series, and Kimberlina series.

Garces Series: The Garces series consists of very deep, well drained saline-sodic soils that formed in granitic alluvium. Garces soils are on alluvial fans, terraces, and basin rims. Much of this soil is being reclaimed and used for irrigated agriculture.

Milham Series: The Milham series consists of very deep, well drained soils on alluvial fans, plains, low terraces, and fan remnants. These soils formed in mixed calcareous alluvium weathered from granitic and sedimentary rock. This series is primarily used for livestock grazing and for growing irrigated field, forage, and row crops.

Kimberlina Series: The Kimberlina series consists of very deep, well drained soils on flood plains and recent alluvial fans. These soils are formed in mixed alluvium derived dominantly from igneous and/or sedimentary rock sources. This series is primarily used for growing irrigated field, forage, and row crops, and some areas are used for livestock grazing.

Most soil series mapped at the site are moderately to very strongly alkaline, with a pH of 7.9 or higher, which can hinder the formation of redoximorphic concentrations used to identify hydric soils in the field. Salt accumulation and deposits observed during the delineation indicate saline conditions. Due to these factors and the absence of hydric soil indicators in the field, the delineation methodology used in the background report on which this analysis is based (Dudek 2025a) followed the guidance in Chapter 5 of the USACE Arid West Regional Supplement, and assumed soils were hydric at sample points with hydrophytic vegetation, wetland hydrology indicators, and a landscape position consistent with local wetlands. The landcover at the Project site is primarily cultivated and has soils that are primarily belonging to Hydrologic Soil Groups (HSG) A, C, and D. Typically, A soils are sands, C soils are clay loams, and D soils are clays. Soils belonging to HSG C and D exhibit low to very low infiltration rates opposed to Hydrologic Soil Group A that show high infiltration rates. Standing water will be slow to infiltrate C and D soils during and after storm events when compared to soils belonging to HSG A or B.

Table 4.10-1: Project Site Soil Types

Soil Category	pH	Hydric Rating	Acreage
Buttonwillow clay, drained	8.2	Yes	1,010.6
Buttonwillow clay, partially drained	8.2	Yes	60,00
Calflax clay loam, saline-sodic, 0% to 2% slopes, MLRA 17	7.4	Yes	1,049.3
Garces silt loam	8.7	Yes	3,376.9
Garces silt loam, hard substratum	8.7	Yes	20.3
Garces silt loam, moderately wet	8.7	Yes	2.8
Granoso loamy sand, 0% to 2% slopes	8.0	Yes	131.5
Jerryslu loam	8.5	Yes	369,7
Kimberlina fine sandy loam, 0% to 2% slopes, MLRA 17	8.0	Yes	1,926.3
Lerdo clay loam, saline-alkali, partially drained	8.5	Yes	94.4
Lerdo complex, drained	8.5	Yes	641.4
Lokern clay, drained	8.2	Yes	11.0
Lokern clay, saline-alkali, drained	8.2	Yes	966.4
Milham sandy loam, 0% to 2% slopes, MLRA 17	8.3	No	3,245.0
Panoche clay loam, 0% to 2% slopes	7.8	No	68.9
Water	N/A	Yes	25.1
		TOTAL	**12,999.6**

Source: Dudek 2025

Note:

Totals may not sum due to rounding.

Key: N/A = not applicable

Floodplains

Floodplains are areas susceptible to floodwater inundation. They absorb and moderate the flow of water from flooding events in adjacent or nearby waterways. A Flood Insurance Rate Map (FIRM) is the official map prepared by the Federal Emergency Management Agency (FEMA) to delineate both the special flood hazard areas and the flood risk premium zones applicable to an area (**Figure 4.10-3:** *Federal Emergency Management Agency Flood Insurance Rate Map*). FEMA designates the special flood hazard areas (SFHA) using either an "A" or "V," where an area designated as Zone A indicates mapped areas are within the 100-year flood zone, signifying the area is at risk of flooding by 1 percent every year. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are labeled Zone C or Zone X (unshaded).The Project site is located in an area with minimal flood hazard, as it is located entirely within Zone X, as displayed in **Figure 4.10-3:** *Federal Emergency Management Agency Flood Insurance Rate Map*.

Dam Failure, Seiche, and Tsunami

The USACE prepares flood inundation maps in the event of a dam failure, where the closest dam is Lake Isabella dam, east of the City of Bakersfield (**Figure 4.10-4:** *Lake Isabella Flood Area*). Several factors can contribute to dam failure including prolonged periods of rainfall, earthquakes, inadequate spillway capacity, and internal erosion caused by embankment or foundation leakage or piping. Dam failure is not likely to be instantaneous. While a dam failure may occur at any time of year, winter or spring rain/snowmelt events can yield the most damaging effects. Additionally,

Figure 4.10-3: Federal Emergency Management Agency Flood Insurance Rate Map

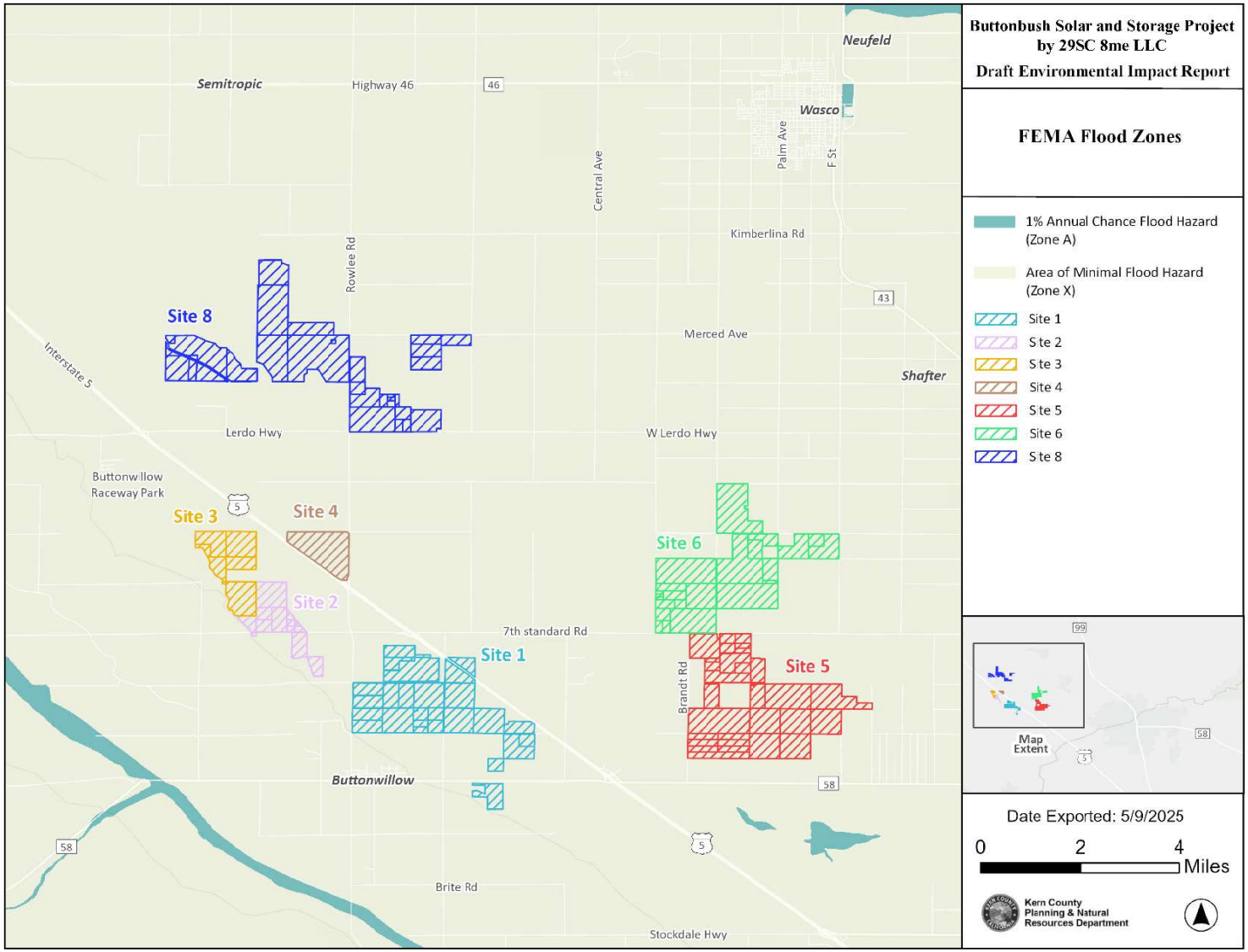
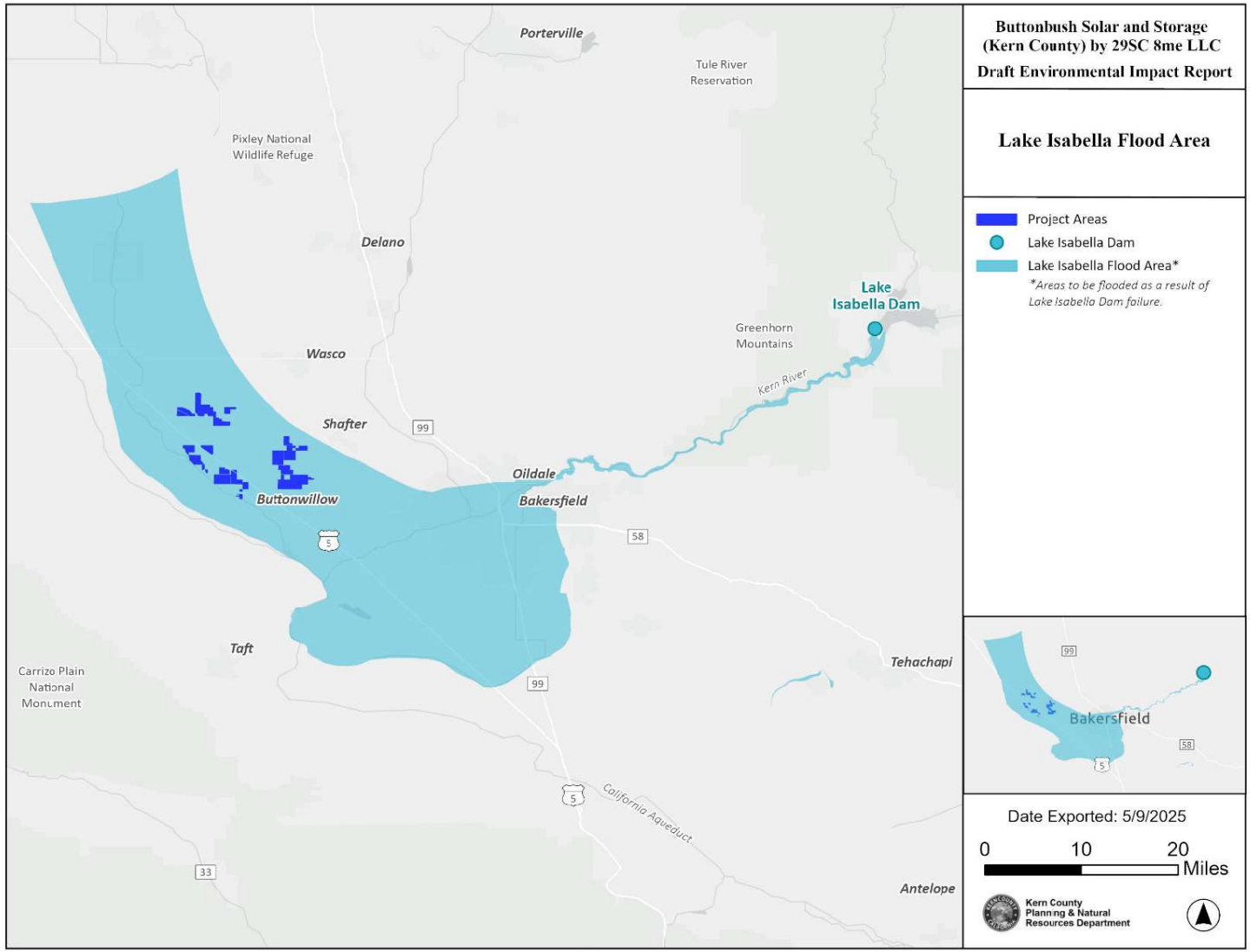


Figure 4.10-4: Lake Isabella Flood Area



movement along the Kern Canyon Fault could weaken the dam and trigger a seiche in the lake. A seiche is a standing wave in an oscillating body of water.

The Project site is within the Lake Isabella dam inundation areas as defined by the Kern County General Plan (KCGP). Should the dam fail, water would travel southwest approximately 23 miles in a narrow canyon inundating major interstate highways, railroads, and most of the City of Bakersfield. The 2009 Lake Isabella Dam Failure Evacuation Plan provides emergency procedures and evacuation routes in the event of a dam failure. According to this 2009 plan, the USACE states that it cannot predict minimum or maximum times when a dam failure event will advance from one level to the next, as these events are context dependent. However, the USACE estimates that there will be five hours between dam failure and water reaching the mouth of Kern Canyon where the Kern River enters the San Joaquin Valley east of the City of Bakersfield, approximately 25 miles east of Site 5, the closest Project site (Kern County 2009). If evacuation is necessary, the Kern County/Operational Area will activate Emergency Operations Centers and evacuation recommendations will be disseminated by all available means.

A tsunami is a series of ocean waves generated by sudden displacements in the sea floor, landslides, or volcanic activity. The Project site is located approximately 67 miles east of the Pacific Ocean. Therefore, the risk for tsunami in the Project site is very low.

4.10.3 Regulatory Setting

Federal

Clean Water Act (33 United States Code Section1321 et seq.)

The CWA (33 United States Code [USC] Section 1251 et seq.), formerly the Federal Water Pollution Control Act of 1972, was enacted with the intent of restoring and maintaining the chemical, physical, and biological integrity of the waters of the United States. The CWA required states to set standards to protect, maintain, and restore water quality through the regulation of point source and certain nonpoint source discharges to surface water. Those discharges are regulated by the National Pollutant Discharge Elimination System (NPDES) permit process (CWA Section 402). In California, NPDES permitting authority is delegated to, and administered by, the nine RWQCBs. The Project site is within the Central Valley RWQCB. Projects that disturb one or more acres, such as the proposed Project, are required to comply with NPDES construction general permits.

Section 401, Water Quality Certification

Section 401 of the CWA requires that, prior to issuance of any federal permit or license, any activity (including river or stream crossing during road, pipeline, or transmission line construction) which may result in discharges into waters of the United States must be certified by the state, as administered by the RWQCB. This certification ensures that the proposed activity does not violate state and/or federal water quality standards.

Section 402, National Pollutant Discharge Elimination System

Section 402 of the CWA authorizes the State Water Resources Control Board (SWRCB) to issue a NPDES General Construction Stormwater Permit (Water Quality Order 2009-0009-DWQ), referred to as the "General Construction Permit." Construction activities can comply with and be covered under the General Construction Permit provided that they meet the following criteria:

- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP) which specifies best management practices (BMPs) that will prevent all construction pollutants from contacting stormwater and intend to keep all products of erosion from moving off-site into receiving waters.
- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the United States.
- Perform inspections of all BMPs.

The Central Valley RWQCB administers NPDES regulations that apply to the Project site.

Section 303, Water Quality Standards and Implementation Plans

Section 303(d) of the CWA (33 USC 1250, et seq., at 1313(d)) requires states to identify "impaired" water bodies as those which do not meet water quality standards. States are required to compile this information in a list and submit the list to the U.S. EPA for review and approval. This list is known as the Section 303(d) list of impaired waters. As part of this listing process, states are required to prioritize waters and watersheds for future development of total maximum daily loads (TMDL) requirements. The SWRCB and RWQCBs have ongoing efforts to monitor and assess water quality, prepare the Section 303(d) list, and develop TMDL requirements.

Section 404, Discharge of Dredged or Fill Materials.

Section 404 of the CWA establishes programs to regulate the discharge of dredged and fill material in waters of the United States, including wetlands. For purposes of Section 404 of the CWA, the limits of non-tidal waters extend to the ordinary high water mark, defined as the line on the shore established by the fluctuation of water and indicated by physical characteristics, such as a natural line impressed on the bank, changes in the character of the soil, and presence of debris. When an application for a Section 404 permit is made, the applicant must show it has done the following:

- Taken steps to avoid impacts to wetlands or waters of the United States, where practicable
- Minimized unavoidable impacts to waters of the United States and wetlands
- Provided mitigation for unavoidable impacts

Section 404 of the CWA requires a permit for construction activities involving placement of any kind of fill material into waters of the United States or wetlands. A water quality certification pursuant to Section 401 of the CWA is required for Section 404 permit actions. If applicable, construction would also require a request for water quality certification (or waiver thereof) from

the Central Valley RWQCB. Project activities would adhere to state and federal water quality standards, and would be in compliance with Sections 401 and 404 of the CWA.

National Flood Insurance Act

FEMA is responsible for managing the National Flood Insurance Program (NFIP) that makes federally backed flood insurance available for communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage. The NFIP, established in 1968 under the National Flood Insurance Act, requires that participating communities adopt certain minimum floodplain management standards, including restrictions on new development in designated floodways, a requirement that new structures in the 100-year flood zone be elevated to or above the 100-year flood level (known as the base flood elevation), and a requirement that subdivisions be designed to minimize exposure to flood hazards.

To facilitate identifying areas with flood potential, FEMA has developed FIRMs that can be used for planning purposes, including floodplain management, flood insurance, and enforcement of mandatory flood insurance purchase requirements. Kern County is a participating jurisdiction in the NFIP and, therefore, all new development must comply with the minimum requirements of the NFIP.

State

Department of Water Resources

The major responsibilities of the California DWR include preparing and updating the California Water Plan to guide development and management of the state's water resources; planning, designing, constructing, operating, and maintaining the State Water Resources Development System; regulating dams; providing flood protection; assisting in emergency management to safeguard life and property; educating the public; and serving local water needs by providing technical assistance. In addition, DWR cooperates with local agencies on water resources investigations, supports watershed and river restoration programs, encourages water conservation, explores conjunctive use of ground and surface water, facilitates voluntary water transfers, and, when needed, operates a state drought water bank.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (Water Code Sections 13000 et seq.), passed in 1969, is the primary statute covering the quality of waters in California and requires protection of water quality by appropriate design, sizing, and construction of erosion and sediment controls. The Porter-Cologne Act established the SWRCB and divided California into nine regions, each overseen by an RWQCB. The SWRCB is the primary State agency responsible for protecting the quality of the State's surface and groundwater supplies and has delegated primary implementation authority to the nine RWQCBs. The Porter-Cologne Act assigns responsibility for implementing the CWA Sections 401 through 402 and 303(d) to the SWRCB and the nine RWQCBs. Each of the nine RWQCBs adopts a water quality control plan (basin plan). The Porter-Cologne Act requires the development and periodic review of water quality control plans that

designate beneficial uses of California's major rivers and groundwater basins and establish narrative and numerical water quality objectives for those waters, provide the technical basis for determining waste discharge requirements, identify enforcement actions, and evaluate clean water grant proposals. Water quality problems in the regions are listed in these plans, along with the causes if they are known. The basin plans are updated every three years. Compliance with basin plans is primarily achieved through implementation of the NPDES, which regulates waste discharges as previously discussed. The Porter-Cologne Water Quality Control Act requires that any person discharging waste or proposing to discharge waste within any region, other than to a community sewer system, which could affect the quality of the "waters of the State" file a report of waste discharge. Absent a potential effect on the quality of "waters of the State," no notification is required. However, the RWQCB encourages implementation of BMPs similar to those required for NPDES stormwater permits to protect the water quality objectives and beneficial uses of local surface waters.

As closed systems that never contact the ocean or other waters of the United States, many waters are technically not subject to protective regulations under the federal NPDES Program. The completion of an NPDES applicability form for all construction projects disturbing at least one acre is required by Kern County. This form requires the Project proponent to provide background information on construction activities. Project proponents must apply for the permit under one of the following four conditions:

1) All stormwater is retained on-site and no stormwater runoff, sediment, or pollutants from on-site construction activity can discharge directly or indirectly off-site or to a river, lake, stream, municipal storm drain, or off-site drainage facilities.

2) All stormwater runoff is not retained on-site but does not discharge to a water of the United States (that is, drains to a terminal drainage facility). Therefore, a SWPPP must be developed and BMPs must be implemented.

3) All stormwater runoff is not retained on-site, and the discharge is to a water of the United States. Therefore, a Notice of Intent must be filed with the State Regional Water Resources Control Board prior to issuance of the building permit. Also, a SWPPP has been developed and BMPs must be implemented.

4) Construction activity is between one and five acres and an Erosivity Waiver was granted by the SWRCB. BMPs must be implemented.

The purpose of the form is to identify which water quality protection measure requirements apply to different projects, if any. Should stormwater runoff be contained on-site and not discharge into any waters, no special actions are required. Comparatively, should stormwater runoff discharge into waters of the United States, compliance with the SWRCB Construction General Permit SWPPP requirements is required. Should stormwater runoff not be contained on-site and drain to waters of the state or a terminal drainage facility, the Project proponent would be required to develop a SWPPP and BMPs.

California Fish and Game Code

California Fish and Game Code Section 1602 protects the flow, bed, channel, and bank of any river, stream, or lake designated by the California Department of Fish and Wildlife (CDFW) in which there is, at any time, any existing fish or wildlife resources, or benefit for the resources. Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state, and requires any person, state, or local governmental agency, or public utility to notify CDFW before beginning any activity that will:

- Substantially divert or obstruct the natural flow of any river, stream, or lake;
- Substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or
- Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

If it is determined during final engineering and design of a project that any project-related actions would have the potential to necessitate a streambed alteration agreement, such an agreement would be prepared and implemented prior to construction of the proposed Project, thus maintaining compliance with Section 1602 of the California Fish and Game Code. A streambed alteration agreement is required if CDFW determines the activity could substantially adversely affect an existing fish and wildlife resource. The agreement includes measures to protect fish and wildlife resources while conducting the proposed Project. CDFW must comply with California Environmental Quality Act (CEQA) before it may issue a final lake or streambed alteration agreement; therefore, CDFW must wait for the lead agency to fully comply with CEQA before CDFW may execute the draft lake or streambed alteration agreement, thereby making it final.

Sustainable Groundwater Management Act

The SGMA of 2014 effective January 1, 2015, authorizes local agencies to manage groundwater in a sustainable manner and allows limited state intervention when necessary to protect groundwater resources. SGMA requires the creation of a Groundwater Sustainability Agency (CB) for DWR-designated medium- and high-priority basins, which must develop and implement a Groundwater Sustainability Plan (GSP) to manage and use groundwater in a manner that can be maintained during the planning and implementation horizon without undesirable results. Undesirable results include:

1) Chronic lowering of groundwater levels, indicating a significant and unreasonable depletion of supply;
2) Significant and unreasonable reduction of groundwater storage;
3) Significant and unreasonable seawater intrusion;
4) Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies;

5) Significant and unreasonable land subsidence that substantially interferes with surface land uses; and

6) Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

SGMA allows for multiple GSPs implemented by multiple GSAs and coordinated pursuant to a single coordination agreement that covers the entire basin to be an acceptable planning scenario (Water Code Section 10727). In the Subbasin, per the Kern County Subbasin Groundwater Sustainability Plan 2025 (KCS 2025), seven GSPs were prepared by 20 GSAs for the various management areas established in the Subbasin pursuant to a coordination agreement and submitted to the California DWR for review. Collectively, the seven GSPs and the Kern Subbasin Coordination Agreement are referred to as the "Plan for the Subbasin." Individually, the GSPs include the following:

- Kern Subbasin GSP–Amended July 2022, prepared by the Arvin GSA, Cawelo Water District GSA, Kern Non-Districted Land Authority GSA, Kern River GSA, Kern Water Bank GSA, Greenfield County Water Districts GSA, North Kern WSD GSA, Pioneer GSA, Rosedale-Rio Bravo WSD GSA, Shafter-Wasco ID GSA, Southern San Joaquin MUD GSA, Tejon-Castac Water District GSA, West Kern Water District GSA, Wheeler Ridge-Maricopa GSA
- Buena Vista GSA GSP, July 2022, prepared by the Buena Vista Water Storage District GSA
- Kern-Tulare Water District GSA GSP, September 2024, prepared by the Kern-Tulare Water District GSA
- Olcese GSA GSP, July 2022, prepared by the Olcese Water District GSA
- VWSD (SWSD) GSA GSP, December 2024, prepared by Semitropic Water Storage District GSA GSP
- Henry Miller Water District GSP, July 2022, prepared by the Henry Miller Water District GSA
- Westside District Water Authority GSA GSP, 2025, prepared by the Westside District Water Authority GSA GSP

On March 2, 2023, the DWR determined that the Kern County Subbasin's July 2022 GSPs were inadequate for the following deficiencies:

- Deficiency 1 involved how the Plan for the Subbasin established and justified undesirable results that represent effects caused by groundwater conditions occurring throughout the Subbasin.
- Deficiency 2 involved the establishment of minimum thresholds for the chronic lowering of groundwater levels.
- Deficiency 3 involved the establishment of sustainable management criteria for land subsidence.

However, the Kern County Subbasin GSAs incorporated revisions and submitted revised GSPs to the State Water Board for review on September 2, 2025. On September 17, 2025, the State Water Board: determined that the Kern County Subbasin GSAs substantially addressed the deficiencies; and directed DWR staff to review the revised GSPs regarding changes to be made to address the deficiencies and, if satisfactorily resolved, to transmit a letter to the DWR formalizing the return of the Kern County Subbasin to DWR.

Senate Bill 610

Senate Bill (SB) 610 SB 610 was passed on January 1, 2002, amending California law to require detailed analysis of water supply availability for large development projects. An SB 610 WSA must be prepared if the following three conditions are met:

- The project is subject to CEQA under the California Water Code 10910;
- The project meets criteria to be defined as a "Project" under California Water Code Section 10912; and
- The applicable water agencies current Urban Water Management Plan does not account for the water supply demand associated with the project. A project would meet the definition of "Project" per California Water Code Section 10912(a) if it is"
- A proposed residential development of more than 500 dwelling units.
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space; • A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space; • A proposed hotel or motel, or both, having more than 500 rooms;
- A proposed industrial, manufacturing, or processing plant or industrial part planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area;
- A mixed-use project that includes one or more of the projects specified above; or
- A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling unit project.

SB 610 was not originally clear on whether renewable energy developments are subject to SB 610 and require the preparation of a WSA. SB 267 was signed into law on October 8, 2011, amending California's Water Law to revise the definition of "project" specified in SB 610. Under SB 267, wind and photovoltaic (PV) projects that consumed less than 75 acre-feet per year (AFY) of water were not considered to be a "project" under SB 610; subsequently, a WSA would not be required for this type of project. The renewable energy exclusions provided by SB 267 expired in January 2017. Since the language of SB 610 remains unclear on whether renewable energy projects meet the definition of a "project," a WSA was prepared for the proposed Project.

Local

Kern County General Plan

The Project site is located within the unincorporated area of Kern County and, therefore, is subject to applicable goals, policies, and implementation measures of the KCGP. The Land Use, Open Space, and Conservation Element and the Safety Element of the KCGP contain the following, applicable goals, policies, and implementation measures related to hydrology and water quality.

Chapter 1. Land Use, Open Space, and Conservation Element

1.3. Physical and Environmental Constraints

Policies

Policy 1. Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained ((Map Code 2.1 (Seismic Hazard), Map Code 2.2 (Landslide), Map Code 2.3 (Shallow Groundwater), Map Code 2.5 (Flood Hazard), Map Codes from 2.6 – 2.9, Map Code 2.10 (Nearby Waste Facility), and Map Code 2.11 (Burn Dump Hazard)) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.

Policy 8. Encourage the preservation of the floodplain's flow conveyance capacity, especially in floodways, to be open space/passive recreation areas throughout the County.

Policy 9. Construction of structures that impede water flow in a primary floodplain will be discouraged.

Policy 10. The County will allow lands which are within flood hazard areas, other than primary floodplains, to be developed in accordance with the General Plan and Floodplain Management Ordinance, if mitigation measures are incorporated so as to ensure that the proposed development will not be hazardous within the requirements of the Safety Element (Chapter 4) of this General Plan.

Policy 11. Protect and maintain watershed integrity within Kern County.

Implementation Measures

Implementation Measure F. The County will comply with the Colbey-Alquist Floodplain Management Act in regulating land use within designated floodways.

Implementation Measure H. Development within areas subject to flooding, as defined by the appropriate agency, will require necessary flood evaluations and studies.

Implementation Measure J. Compliance with the Floodplain Management Ordinance prior to grading or improvement of land for development or the construction, expansion, conversion or substantial improvements of a structure is required.

Implementation Measure N. Applicants for new discretionary development should consult with the appropriate Resource Conservation District and the California RWQCB regarding soil disturbances issues.

1.4. Public Facilities and Services

Goals

Goal 9. Serve the needs of industries and Kern County residents in a manner that does not degrade the water supply and the environment and protect the public health and safety by avoiding surface and subsurface nuisances resulting from the disposal of hazardous wastes, irrespective of the geographic origin of the waste.

1.9. Resource

Policy 11. Minimize the alteration of natural drainage areas. Require development plans to include necessary mitigation to stabilize runoff and silt deposition through utilization of grading and flood protection ordinances.

Implementation Measures

Implementation Measure C. The County Planning Department will seek review and comment from the County Public Works Department, Engineering and Survey Services Division on the implementation of the National Pollution Discharge Elimination System for all discretionary projects.

1.10. General Provisions

Implementation Measures

Implementation Measure E: All new discretionary development projects shall be subject to the Standards for Sewage, Water Supply and Preservation of Environmental Health Rules and Regulations administered by the County's Public Health Services Department. Those projects having percolation rates of less than five minutes per inch shall provide a preliminary soils study and site-specific documentation that characterize the quality of upper groundwater in the alternative septic systems would adversely impact groundwater quality. If the evaluation indicated that the uppermost groundwater at the proposed site already exceeds groundwater quality objectives of the RWQCB or would if the alternative septic system is installed, the applicant would be required to supply sewage collection, treatment, and disposal facilities.

1.10.6. Surface Water and Groundwater

Policies

Policy 34. Ensure that water quality standards are met for existing users and future development.

Policy 39. Encourage the development of the County's groundwater supply to sustain and ensure water quality and quantity for existing users, planned growth, and maintenance of the natural environment.

Policy 40. Encourage utilization of community water system rather than the reliance on individual wells.

Policy 41. Review development proposals to ensure adequate water is available to accommodate projected growth.

Policy 43. Drainage shall conform to the Kern County Development Standards and the Grading Ordinance.

Policy 44. Discretionary projects shall analyze watershed impacts and mitigate for construction-related and urban pollutants, as well as alterations of flow patterns and introduction of impervious surfaces as required by CEQA, to prevent the degradation of the watershed to the extent practical.

Implementation Measures

Implementation Measure Y. Promote efficient water use by utilizing measures such as:

i. Requiring water-conserving design and equipment in new construction.

ii. Encouraging water-conserving landscaping and irrigation methods.

iii. Encouraging the retrofitting of existing development with water-conserving devices.

Buttonwillow Community Development Plan

Site 1 is partially located within the area that is subject to the Buttonwillow Community Development Plan (Specific Plan) and, therefore, is subject to policies contained within the Specific Plan. The Conservation chapter of the Specific Plan includes the following, applicable recommendations and implementation measures related to hydrology and water quality.

Conservation

Underground Waters

Recommendation

- The watershed areas shall be protected from adverse development that might reduce the effectiveness of water release and retention.

Surface Waters

Recommendation

- That the quality of surface waters be preserved.

- No industrial use that could cause contamination of surface waters through waste drainage shall be permitted.

Implementation

- Continuing review of all proposed industrial uses by appropriate departments, agencies and districts prior to granting any approvals.

Kern County Code of Building Regulations

Kern County Grading Ordinance

Grading activities are subject to the requirements of the Kern County Grading Ordinance (Kern County Code of Ordinances, Chapter 17.28). Certain grading activities require the issuance of a grading permit and must comply with hydrology- and water quality-related standards set forth in Section 17.28.140, Erosion Control, which include the following:

Slopes. The faces of cut and fill slopes shall be prepared and maintained to control against erosion. This control may consist of effective planting. The protection for the slopes shall be installed as soon as practicable and prior to calling for final approval. Where cut slopes are not subject to erosion due to the erosion-resistant character of the materials, such protection may be omitted.

Other Devices. Where necessary, check dams, cribbing, riprap, or other devices or methods shall be employed to control erosion and provide safety.

Temporary Devices. Temporary drainage and erosion control shall be provided as needed at the end of each work day during grading operations, such that existing drainage channels would not be blocked. Dust control shall be applied to all graded areas and materials and shall consist of applying water or another approved dust palliative for the alleviation or prevention of dust nuisance. Deposition of rocks, earth materials, or debris onto adjacent property, public roads or drainage channels shall not be allowed.

Floodplain Management

Kern County has adopted a Floodplain Management Ordinance (Kern County Code of Ordinances, Chapter 17.48) that applies to "… any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation, drilling operations, or storage of equipment or materials" (*Ibid*, Section 17.48.060, definition of "Development"). Construction proposed as part of the Project that may take place within areas of special flood hazards, areas of flood-related erosion hazards, and areas of mudslide hazards will comply with the requirements and construction design specifications of this ordinance. Any required development permits will be obtained prior to commencement of construction activities. Sections 17.48.250 through 17.48.350 of the ordinances elaborate on the standards of construction in the special flood hazards area. The Project site does not fall within any mapped SFHA.

Kern County Development Standards

The Kern County Development Standards apply to all developments within Kern County that are outside of incorporated cities. These standards establish minimum design and construction requirements that will result in improvements that are economical to maintain and will adequately serve the general public. The requirements set forth in these standards are considered minimum design standards and will require the approval of the entity that will maintain the facilities to be constructed prior to approval by the County.

4.10.4 Impacts and Mitigation Measures

Methodology

This section analyzes impacts regarding hydrology and water quality from the implementation of the proposed Project based on changes to the environmental setting as described above. The proposed Project's potential impacts regarding hydrology and water quality have been evaluated using the *Aquatic Resource Delineation Report* and the *Water Supply Assessment* both prepared by Dudek Inc. (Appendices D.4 and I.2 of this Draft EIR). Additionally, a variety of resources (for example, multiple online sources, published documents, the KCGP, and professional judgment) were used to analyze the proposed Project's impacts according to CEQA significance criteria described below.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the CEQA Guidelines, to determine if a project could potentially have a significant adverse effect regarding hydrology and water quality.

A project could have a have a significant impact on hydrology and water quality if it would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would:
  - (i) Result in a substantial erosion or siltation on- or off-site;
  - (ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
  - (iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

(iv) Impede or redirect flood flows.

- Result in risk release of pollutants due to project inundation and location in a flood hazard, tsunami, or seiche zone.
- Conflict with, or obstruct, implementation of a water quality control plan or sustainable groundwater management plan.

Project Impacts

Impact 4.10-1: Would the Project violate any water quality standards or waste discharge requirements, or otherwise substantially degrade surface or groundwater quality?

Water quality standards and waste discharge requirements could be violated if the proposed Project releases polluted discharges into receiving waters exceeding permittable amounts. Polluted discharges can generate polluted stormwater runoff (that is, water generated during storm events) or dry weather runoff (that is, water generated during activities such as dust control). Polluted discharge can consist of sediment from erosion, pollutants from herbicides or pesticides applied to agricultural lands or vegetation, or pollutants from construction equipment, such as oil drippings or accidental spills of petroleum hydrocarbons.

Construction

Development of the site includes installation of solar panels and construction of the substations, operation and maintenance (O&M) facility, and batter energy storage system (BESS) yards. During construction activities, soil erosion may result in discharges of sediment-laden stormwater runoff downstream of the Project site. Project construction would include clearing, grubbing, excavation, and grading portions of the Project site. The site is nearly level from existing and continuous agricultural use. Thus, it is anticipated that grading would be limited throughout the Project site to achieve an elevation for final grading. Earth-moving activities would be required as part of the construction of the access road improvements, interior access roads, O&M building(s) and septic field, substation(s), water storage tanks, construction of solar panel foundation supports and related infrastructure, BESSs, transmission tower foundations, microwave towers, construction laydown yards and any stormwater protection or storage (detention) facilities. The site cut and fill would be balanced on-site. The use of heavy equipment such as earthmovers, scrapers, excavators, dozers, water trucks, haul vehicles, and graders would likely be used in site preparation. These activities have the potential to affect current drainage patterns and erosion on the Project site, and soils could become exposed to high winds or heavy precipitation causing a substantial increase in sedimentation in storm water runoff, leading to a potentially significant impact.

Potential impacts regarding water quality from erosion and sedimentation are expected to be localized and temporary during construction. Stormwater runoff from the Project site would not discharge to waters of the United States since the Project site is within a watershed that is not hydrologically connected to a navigable waterway. However, because the proposed Project would disturb more than one acre of ground disturbance, the proposed Project would be required by the

NPDES Construction General Permit to implement a SWPPP during construction. Per Mitigation Measure MM 4.10-1 the SWPPP would include BMPs designed to prevent the occurrence of soil erosion and discharge of other construction-related pollutants that could contaminate water quality and would be applicable to all areas of the proposed Project. In addition, MM 4.10-2 requires implementation of a drainage plan, which would control stormwater runoff and minimize erosion and sedimentation associated with changes in drainage patterns during construction. Stabilized construction entrances and exits would also be installed at the proposed Project entrance driveways to ensure that potential for tracking of sediment onto adjacent public roadways is minimized. Final grading may include revegetation with native plants, low-lying grass, or applying earth-binding materials to disturbed areas, thus minimizing long-term erosion.

In addition, prior to the commencement of construction activities, the Project proponent would be required to adhere to the requirements of the Kern County Grading Code. This includes implementation of various measures designed to prevent erosion and control drainage on-site, thereby further preventing the potential sedimentation and subsequent degradation of stormwater.

As discussed in Chapter 3, *Project Description*, the proposed Project includes the removal of an existing dairy farm and all associated infrastructure. Upon the cessation of dairy operations, it is incumbent upon the dairy owner/operator to ensure the proper disposal of animal waste. If animal waste is not managed appropriately, waste could be discharged into water bodies, impacting water quality standards, specifically those associated with heavy nitrate agricultural runoff, such as depleted oxygen levels in water, and contaminated groundwater and surface water. In addition to the mitigation measures above, MM 4.10-3 would require proper removal of animal waste to avoid discharge into water bodies within the Project site. Mitigation Measure MM 4.10-3 would ensure that all animal waste has been removed at least three months prior to the start of construction and requires proper disposal consistent with the dairy's Nutrient Management Plan approved by the RWQCB. Proper disposal methods include transportation to a disposal facility or composting facility, or transferred to other farms within Kern County, as legally permissible.

During Project construction, any activity that results in the accidental release of hazardous or potentially hazardous materials could result in water quality degradation. Materials that could contribute to this impact include, but are not limited to, petroleum products (for example, gasoline, diesel, and motor oil), automotive fluids (for example, antifreeze, lubricant oils, transmission fluid, and hydraulic fluids), cement slurry, and other fluids utilized by construction vehicles and equipment. Motorized equipment could leak hazardous materials due to inadequate or improper maintenance, unnoticed or unrepaired damage, improper refueling, or operator error. The mobilization of sediment or inadvertent spills or leaks of such pollutants could affect the quality of runoff water from construction activities.

As described in Section 4.9, *Hazards and Hazardous Materials*, of this Draft EIR, Mitigation Measure MM 4.9-1 would require the Project proponent to prepare a Hazardous Materials Business Plan for County review and approval that would: 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 impacts 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. Mitigation Measures MM 4.10-1 and MM 4.10-2 identify additional guidance for the safe handling and use of these materials, which is guided by the NPDES Construction General Permit and SWPPP. The measures identify protocols regarding the handling of these types of materials should a spill or release occur. Therefore, with implementation of Mitigation Measures MM 4.10-1, MM 4.10-2, MM 4.10-3, and MM 4.9-1, impacts to water quality would be less than significant during construction.

Operation

The proposed Project would require limited use of certain hazardous materials for routine operations and maintenance, which could risk water quality upon accidental release. The release of hazardous materials could result in water quality degradation should the materials become entrained in stormwater and lead to a potentially significant impact. However, as described above, implementation of Mitigation Measure MM 4.9-1 would require implementation of a Hazardous Materials Business Plan, which would ensure safe handling of hazardous materials on-site and provide the means for prompt cleanup in the event of an accidental hazardous material release.

Water quality could also be degraded by non-hazardous materials during operation activities. For example, during dry periods, impervious surfaces (that is, hardscape surfaces such as foundations and buildings) can collect greases, oils, and other vehicle-related pollutants. During storm events, these pollutants can mix with stormwater and degrade water quality. Apart from infrequent cleaning of solar panels with water that would result in minimal runoff, no other discharges would occur when the proposed Project is operational. However, per Mitigation Measure MM 4.10-2, a drainage plan would be prepared in accordance with the Kern County Development Standards and Kern County Code of Building Regulations, which would include post-construction structural and nonstructural BMPs to prevent degradation of water quality. BMPs could include features such as drainage swales for collection of runoff prior to off-site discharge. Adherence to these requirements would minimize potential for operational water quality degradation.

With implementation of Mitigation Measures MM 4.9-1 and MM 4.10-2, the proposed Project would not violate water quality standards or waste discharge requirements or otherwise degrade water quality in surface water or groundwater.

Decommissioning

It is anticipated that during project decommissioning, project structures that would not be needed for subsequent use would be removed from the Project site. Areas within the Project site would be restored to their pre-construction condition unless they are to be used for a subsequent land use. The area would be thoroughly cleaned, and all debris would be removed. Materials would be recycled to the extent feasible, with the remainder disposed in landfills in compliance with all applicable laws.

Potential impacts regarding water quality from erosion and sedimentation are expected to be localized and temporary during decommissioning. As described above, the proposed Project would implement Mitigation Measures MM 4.10-1, which would require a SWPPP that would include

BMPs designed to prevent soil erosion and discharge of pollutants that could contaminate water quality and would be applicable to all areas of the proposed Project. In addition, Mitigation Measure MM 4.10-2 requires implementation of a drainage plan, which would control stormwater runoff and minimize erosion and sedimentation associated with changes in drainage patterns during decommissioning. During proposed Project decommissioning, any activity that results in the accidental release of hazardous or potentially hazardous materials could result in water quality degradation. As described above, Mitigation Measure MM 4.9-1 would require the Project proponent to prepare a Hazardous Materials Business Plan, which would provide guidance for handling hazardous materials. Therefore, with implementation of Mitigation Measures MM 4.10-1, MM 4.10-2, and MM 4.9-1, impacts to water quality would be less than significant during decommissioning.

PG&E Midway Substation Upgrades

To accommodate the requests, Pacific Gas & Electric (PG&E) proposes to enlarge Midway Substation's 500 kV yard within the PG&E owned Midway Substation property boundaries. The PG&E Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities as part of the proposed Project. To support the proposed Buttonbush Solar and Storage Project's communication infrastructure, PG&E may install two 4-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest. This fiber-optic line is critical for the safe and efficient operation of the proposed Project. The fiber-optic line route will be trenched underground from the Midway Substation to the Point of Change of Ownership.

PG&E proposes to remove the existing precast security wall at the northwest side of the Midway Substation and replace it with a new 12-foot wall, similar in appearance and material, approximately 510 feet north and 140 feet west of the existing walls of the 500 kV yard within Midway Substation. Grading of the connection area may be required and prior to any ground-disturbing activities. PG&E would acquire all necessary permits. Within the proposed graded area of the Midway Substation, PG&E would install approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker. This would include installing equipment foundations and concrete trenches, equipment cabinets, bus structures, communication lines, conduits, pull boxes, and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, PG&E would install up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from Midway Substation to the Point of Change of Ownership for the proposed project. Up to four approximately 175-foot-tall lattice steel towers or tubular steel poles would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads.

Proposed Project construction, grading, and excavation activities within the Midway Substation parcels have the potential to degrade surface or groundwater quality. To avoid potential impacts to water quality, PG&E should implement SWPPP BMPs, as required by MM 4.10-1 and MM 4.10-2, designed to prevent the occurrence of soil erosion and discharge of construction-related pollutants

that could contaminate water quality. Finally, PG&E has adopted BMPs (Appendix M) that apply to all PG&E construction projects, which include BMPs (BMP 8 through 12) that requires certain erosion control measures to be implemented on bare soil.

Summary

With implementation of Mitigation Measures 4.9-1 (See Section 4.9, *Hazards and Hazardous Materials,* for full mitigation measure text), MM 4.10-1 through MM 4.10-3, proposed Project impacts regarding hydrology and water quality would be less than significant.

Mitigation Measures

Implementation of Mitigation Measure MM 4.9-1 (Section 4.9, *Hazards and Hazardous Materials*) and the following would be required:

MM 4.10-1: Prior to issuance of a grading permit, the project proponent/operator shall submit a SWPPP for review and approval by the Kern County Planning and Natural Resources Department and/or Kern County Public Works Department. The SWPPP shall be designed to minimize runoff and shall specify best management practices to prevent all construction pollutants from contacting stormwater, with the intent of keeping sediment or any other pollutants from moving off-site and into receiving waters. The requirements of the SWPPP shall be incorporated into design specifications and construction contracts. Recommended best management practices to be incorporated in the SWPPP may include the following:

a. Minimization of vegetation removal;

b. Implementing sediment controls, including silt fences as necessary;

c. Installation of a stabilized construction entrance/exit and stabilization of disturbed areas;

d. Properly containing and disposing of hazardous materials used for construction on-site;

e. Properly covering stockpiled soils to prevent wind erosion;

f. Proper protections and containment for fueling and maintenance of equipment and vehicles;

g. Appropriate disposal of demolition debris, concrete and soil, and aggressively controlling litter;

h. Cleanup of silt and mud on adjacent street due to construction activity;

i. Checking all lined and unlined ditches after each rainfall;

j. Restore all erosion control devices to working order to the satisfaction of the Kern County Planning and Natural Resources Department and/or Kern County Public Works Department after each rainfall runoff; and

k. Install additional erosion control measures as may be required due to uncompleted grading operations or unforeseen circumstances which may arise.

MM 4.10-2: Prior to the issuance of a grading permit, the project proponent/operator shall complete a hydrologic study and final drainage plan designed to evaluate and minimize potential increases in runoff from the project site. The study shall include, but is not limited to the following:

a. A numerical stormwater model for the project site that evaluates existing and proposed (with project) drainage conditions during storm events ranging up to the 100-year event.

b. The study shall also consider potential for erosion and sedimentation in light of modeled changes in stormwater flow across the project site that would result from project implementation.

c. Engineering recommendations to be incorporated into the proposed project design and applied within the site boundary. Engineering recommendations will include measures to offset increases in stormwater runoff that would result from the project, as well as implementation of design measures to minimize or manage flow concentration and changes in flow depth or velocity so as to minimize erosion, sedimentation, and flooding on-site or off-site.

d. A specification that the final design of the solar arrays shall include one foot of freeboard clearance above the calculated maximum flood depths for the solar arrays or the finished floor of permanent structures. Solar panel sites located within a 100-year floodplain shall be graded to direct potential flood waters without increasing the water surface elevations more than one foot or as required by Kern County's Floodplain Management Ordinance.

e. The hydrologic study and drainage plan shall be prepared in accordance with the Kern County Grading Code and Kern County Development Standards, and approved by the Kern County Public Works Department prior to the issuance of grading permits.

MM 4.10-3: Prior to the issuance of any building or grading permit within the boundaries of Site 6 (CUP #17, Map 78), the Project proponent shall provide documentation to the Planning and Natural Resources Department that:

a. All animal waste land application activities associated with the existing Tjaarda Dairy, within the project site boundaries, have been removed from the lagoons, ponds, corrals, and other areas of the dairy through one of the following three options, at least three months prior to the start of construction within the footprint of the existing Dairy located on APN 088-220-16:

1. The animal waste was applied to approved land application areas outside of the project site and consistent with the dairy's Nutrient Management Plan approved by Regional Water Quality Control Board (RWQCB).
2. The animal waste was transported to a permitted disposal or composting facility.
3. The animal waste will be composted on APN 088-220-16 and sold or transferred to other farms within Kern County, as legally permissible.

b. The project proponent shall further provide appropriate documentation, such as a final facility closure plan, confirming the final closure of the project site for use as dairy operations by the RWQCB or other relevant agencies who have dairy oversight responsibilities and that no new animal waste land use applications have occurred on-site within the past three (3) months.

Level of Significance after Mitigation

Less than significant.

Impact 4.10-2: Would the Project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the Basin?

The Project site overlies the DWR-designated groundwater Kern County Subbasin. Groundwater sustainability in the Subbasin is overseen by the KGA, which has adopted the Kern Groundwater Authority GSP. The proposed Project would use water during construction and operation of the proposed Project. The SWSD has agreed to supply water for the proposed Project, which receives imported water from the SWP. The water would be delivered at district turnouts on the Project site via SWSD's existing water infrastructure network. Additional water may be obtained from new or existing on-site wells and other water districts for portions of the project within their service areas, and water demands would not substantially deplete groundwater supplies, as discussed further in Section 4.17, *Utilities*. The Project site currently uses approximately 17,159 AFY for crop production.

Construction

Total water usage during construction is not anticipated to exceed 1,000 AFY and a total of 3,500 AF over a construction period of up to five years. Potable water for drinking and similar needs during construction would be trucked in from off-site (for example, bottled water). Temporary, portable water tanks may be placed on-site to store water for construction purposes. Construction water would be used primarily for dust suppression, soil compaction, concrete hydration, and other miscellaneous activities requiring non-potable water during construction. It is anticipated that the proposed Project may use mulch in certain areas to suppress dust control, which would contribute to water efficiency, as mulch lowers the evapotranspiration rate. Portable restroom facilities would

be provided to the workers during construction. The proposed Project would likely be built over the course of up to five years.

Water for project construction and operation would primarily be provided by SWSD, per the Will-Serve letters in Appendix I.2 and I.3. Additional water may be sourced from private wells. Construction water demand would be limited to five years and would be less than the historical demand on the project site. Further, the total proposed Project water demand of 3,745, or approximately 97 AFY when amortized over the life of the project, equates to a per-acre consumptive use rate of approximately 0.008 AF/acre. This is a 99 percent reduction from the historical land use water demand of 1.43 AF/acre or 17,159 AFY for agriculture and is less than the Subbasin sustainable yield target consumptive use rate of approximately 0.73 AF/acre.

SWSD has a SWP Table A entitlement of 155,000 AFY. DWR predicts the future average annual Table A allocation to average about 58 percent of contract amounts, which would yield an average supply of approximately 89,900 AFY for SWSD. Further, as provided in its Will Serve letter, SWSD claims to have sufficient supplies to provide the project with up to 3,500 AF for construction and 7 AFY for operation, which would be sufficient to satisfy the proposed Project construction demand of 1,000 AFY and operational demand of 7 AFY. Additionally, the Subbasin is not adjudicated and currently there is no groundwater pumping allocation, so additional groundwater may be extracted for reasonable and beneficial use without limitation, provided pumping does not cause significant, unreasonable, and negative impacts to the basin or other users. Project water demand is less than the historical use at the project site, would reduce groundwater use in the Subbasin, and would contribute to achieving sustainability. Due to the estimated five years of construction water demands, as well as the proposed Project's operational demands compared to existing and historical water demands on the Project site, the proposed Project would be consistent with actions designed to assist with the recovery of the subbasin from overdraft conditions and the achievement of sustainable conditions through implementation of the GSPs. The proposed Project would not compromise the GSA's efforts to avoid undesirable results such as chronic lowering of groundwater levels and significant and unreasonable reduction of groundwater storage. Therefore, the proposed Project is not anticipated to substantially decrease groundwater supplies or impede sustainable groundwater management of the basin.

Additionally, construction activities would not prevent or inhibit any incidental groundwater recharge that may occur on-site during precipitation events, because construction activities would not create substantial new impermeable areas. During construction, the Project site would generally remain pervious and would allow any current infiltration that occurs to continue. During installation of the proposed Project components, most rainfall would disperse across their panel surface and fall to the ground surface. This would facilitate infiltration and subsequent groundwater recharge.

Therefore, construction of the proposed Project would have a less than significant impact on groundwater supplies and would not substantially interfere with groundwater recharge.

Operation

It is estimated that approximately seven AFY of water would be used for panel washing, fire suppression, and O&M domestic use (for example, lavatories, dust suppression, and drinking). Water would be obtained from on-site wells or delivered via truck from an off-site source(s) within the proposed Project vicinity. SWSD has agreed to supply water for the proposed Project with will-serve letters appended to the Water Supply Assessment (Appendix I.2.) The water would be delivered at district turnouts on the Project site via SWSD's existing water infrastructure network. Additional water may be obtained from new or existing on-site wells. As noted above, due to the small size of the project's operational demands compared to existing and historical water demands on the Project site, the proposed project would be consistent with actions designed to help with the recovery of the subbasin from overdraft conditions and the achievement of sustainable conditions through implementation of the GSPs. The proposed Project would not affect the ability of the subbasin to avoid undesirable results such as chronic lowering of groundwater levels and significant and unreasonable reduction of groundwater storage. Therefore, project operations would not substantially decrease groundwater supplies or impede sustainable groundwater management of the basin.

Components of the proposed Project have the potential to increase the amount of impervious areas on the Project site, which may interfere with groundwater recharge and result in a potentially significant impact. As described above, Mitigation Measure MM 4.10-2 would require the preparation of a hydrologic study and final drainage plan per the Kern County Development Standards and the Kern County Code of Building Regulations prior to issuance of a grading permit. The hydrologic study and drainage plan would evaluate the changes to hydrology on-site and recommend measures to minimize potential increases in runoff from the Project site. Recommended measures may include the development of on-site features, such as retention basins to manage flow concentrations and allow groundwater infiltration. The proposed Project would result in an increase in impervious surfaces on the site from the equipment foundations as well as the energy storage facilities. The access roads could also increase impervious surface areas if compacted gravel base is effectively impervious. Although the panels and panel foundations are impervious, stormwater falling on the panels would drip off and infiltrate into the surrounding pervious ground surfaces. Otherwise, even if the access roads are impervious, the majority of the site would remain pervious and thus would not substantively interfere with groundwater recharge. Therefore, the proposed Project would leave large areas of pervious surfaces intact that would continue to absorb stormwater runoff and would thus not result in a significant reduction of groundwater infiltration rates.

Adherence to the requirements of the approved final hydrologic study and drainage plan would minimize operational impacts to groundwater recharge during operation. With implementation of Mitigation Measure MM 4.10-2, proposed Project operations would have a less than significant impact on groundwater supplies or recharge.

Moreover, as discussed above, the proposed Project would be consistent with the KGA GSP, and proposed Project implementation would not impede sustainable groundwater management of the basin. Therefore, impacts would be less than significant.

Decommissioning

As described above, additional water may be obtained from existing on-site wells. Water demand for decommissioning would be similar to construction and would be a temporary demand, well below historical water demands on the Project site. Therefore, the proposed Project is not anticipated to substantially decrease groundwater supplies as a result of decommissioning activities.

If any portion of the Project site is decommissioned, it would be converted to other uses in accordance with the applicable land use regulations in effect at that time. It is anticipated that during project decommissioning, project structures that would not be needed for subsequent use would be removed from the Project site. As described above, Mitigation Measure MM 4.10-2 would require the preparation of a hydrologic study and drainage plan, which would evaluate the changes to hydrology on-site and recommend measures to minimize potential increases in runoff from the Project site. Decommissioning of the proposed Project would leave areas of pervious surfaces intact that would continue to absorb stormwater runoff and would thus not result in a significant reduction of groundwater infiltration rates.

Adherence to the requirements of the approved final hydrologic study and drainage plan would minimize decommissioning impacts to groundwater recharge during operation. With implementation of Mitigation Measure MM 4.10-2, proposed Project decommissioning would have a less than significant impact on groundwater supplies or recharge.

PG&E Midway Substation Upgrades

As described above in Impact 4.10-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which would entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the point-of-interconnection for the proposed Project. The water demand for the PG&E Midway Substation upgrades were included in the WSA water availability projections and water availability and represent a small portion of overall demand, such that it would not impede sustainable groundwater management. In regard to groundwater recharge, the Substation Upgrades would have minimal impervious surfaces, and PG&E would implement applicable BMPs addressing stormwater runoff and erosion control that which would minimize the potential for interfering with groundwater recharge capabilities on-site.

Summary

With the implementation of Mitigation Measures MM 4.10-2, proposed Project impacts regarding groundwater would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.10-2, as described above.

Level of Significance after Mitigation

Less than significant.

Impact 4.10-3: Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner that would result in substantial erosion or sedimentation on- or off-site?

The proposed Project is located on relatively flat terrain. There are no surface water bodies (for example, creeks, streams, or rivers) within the Project site. However, there are surficial drainages throughout the site. Surface water flow is unlikely to exist within these local drainages unless during heavy precipitation events.

Construction

Grading for the proposed Project and installation of facilities would result in limited changes to the existing on-site drainage patterns, flowpaths, and surface topography. Although minimal changes to water flows are anticipated, the proposed Project has the potential to alter drainage patterns such that flooding could be exacerbated on-site during a rain event. Construction of the proposed Project may result in alterations to the existing drainage pattern in areas with sheetflow, which could result in localized erosion. Construction activities could temporarily concentrate flows from storms and construction water usage, thus resulting in increased sedimentation and erosion of existing soils. However, due to the relatively flat conditions of the Project site, grading is not anticipated to be substantial and would not substantially change the existing drainage patterns. Water received on-site during rain events and off-site flow that enters the site would continue to flow through the site much as it does currently. Concentrated site development would include the O&M facility, BESS yards, substation sites, and communication tower pads which would be designed to avoid or minimize impacts on drainage channels. Grading permits require acceptable engineering reports, including drainage computations accompanied by drainage plans. The proposed Project will also be subject to a SWPPP, as noted in Mitigation Measure MM 4.10-1, which will further reduce the issue of erosion, sedimentation, and siltation impacts.

Operation

The Project site is relatively flat and would remain relatively unchanged post-construction. In the event that the site and drainage plan is not properly designed, during major precipitation events localized flooding could occur within the Project site, along the margins of the Project site, or in off-site downstream drainage areas, leading to a potentially significant impact. However, in accordance with Mitigation Measure MM 4.10-1, the proposed Project's site engineering and design plans would be required to comply with the most recent requirements of the Kern County Code of Building Regulations. The design and plan review process would ensure that the final grading create drainage structures and facilities such that stormwater runoff rates do not increase over existing rates, thus avoiding potential on- or off-site erosive scour and associated sedimentation of downstream drainages.

Lastly, the Project proponent would be required to implement Mitigation Measures MM 4.10-1 and MM 4.10-2 to reduce long-term impacts on drainage patterns across the Project site. Therefore, with mitigation, the proposed Project's impacts would be less than significant.

PG&E Midway Substation Upgrades

As described above in Impact 4.10-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which would entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the point-of-interconnection for the proposed Project. PG&E would implement applicable BMPs addressing stormwater runoff and erosion control that would reduce erosion, sedimentation, and siltation impacts. Additionally, as stated above, Mitigation Measure 4.10-2 would require a project-specific hydrology study and final drainage plan, which would minimize alteration of existing drainage patterns and avoid erosion and sedimentation.

Summary

With the implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2, proposed Project impacts regarding erosion and sedimentation would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.10-1 and MM 4.10-2, as described above.

Level of Significance after Mitigation

Less than significant.

Impact 4.10-4: Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner that would substantially increase the rate of amount of surface runoff in a manner that would result in flooding on- or off-site?

The rate and amount of surface runoff is determined by multiple factors, including topography, the amount and intensity of precipitation, the amount of evaporation that occurs in the watershed, and the amount of precipitation and water that infiltrates groundwater.

Construction

Changes in drainage patterns on-site that relate to the installation of new facilities, particularly changes that result in flow concentration, could increase the occurrence of localized flooding on-site or downstream. The proposed new impervious surfaces could generate additional stormwater

runoff on-site and exacerbate potential increases in localized flooding on-site or downstream, leading to a potentially significant impact. Any increase in surface water runoff resulting from permanent project features is anticipated to be location specific. Although excavation and grading would occur on portions of the Project site, the Project site is relatively flat and ground disturbance would not substantially alter the overall topography or flow regime of these areas or the Project site. Some areas with vegetation would be removed but would be revegetated and maintained in their existing condition to the greatest extent feasible. This would help facilitate groundwater infiltration, minimize surface flow, and reduce runoff. Water would be applied to the ground surface during the temporary construction phase, primarily for dust suppression and to reduce erosion from wind and vehicle disturbances. The water would be mechanically and precisely applied and would generally infiltrate or evaporate which would minimize the potential for uncontrolled runoff from this source. Further, the addition of the proposed permanent stormwater BMPs could result in slight alterations (decrease) in the volume and velocity of stormwater discharging from the Project site. These BMPs will assist in, at a minimum, maintaining the current water quality and discharge rates and volumes on-site.

Grading would not substantially alter the existing contours of the site and there are no existing streams, rivers, or drainages that would be modified by construction activities. Thus, while runoff patterns and concentrations could be altered by grading activities, for the aforementioned reasons, such changes would be minimal and the rate or amount of surface runoff resulting from proposed Project construction activities would be similar to existing conditions, and the potential for on-site or off-site flooding as a result of proposed Project construction is minimal. In accordance with Mitigation Measure MM 4.10-2, a drainage plan would be prepared that would include engineering recommendations to be incorporated into the proposed Project and applied within the site boundary. Engineering recommendations would include measures to offset increases in stormwater runoff that would result from the proposed Project, as well as implementation of design measures to minimize or manage flow concentration and changes in flow depth or velocity to minimize any potential flooding on- or off-site. The potential effects would be further reduced through compliance with design specifications and BMPs required by the Kern County Grading Ordinance and the preparation of a SWPPP, included under Mitigation Measure MM 4.10-1.

Operation

Operation of the proposed Project would slightly alter the existing drainage pattern on-site. Minimal changes to water flows are anticipated.

However, as described above, the Project site is relatively flat and would remain so post-construction. In accordance with Mitigation Measure MM 4.10-2, the proposed Project would be subject to a drainage plan that would further minimize the potential for increased flooding from implementation of the proposed Project, such that impacts would be less than significant.

Decommissioning

Decommissioning of the proposed Project may slightly alter the existing drainage pattern on-site. Although minimal changes to water flows are anticipated, decommissioning activities have the potential to alter drainage patterns such that flooding could be exacerbated on-site during a rain

event. The Project site is relatively flat and would remain so post-decommissioning. In accordance with Mitigation Measure MM 4.10-2, the proposed Project would be subject to a drainage plan that would further minimize the potential for increased flooding from implementation of the proposed Project.

Thus, through conformance with all requirements contained within the Kern County Grading Ordinance and implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2, long-term effects on drainage patterns and the potential to result in flooding on- or off-site, would be less than significant.

PG&E Midway Substation Upgrades

As described above in Impact 4.10-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the point-of-interconnection for the proposed Project. Construction, grading, and excavation activities will be required for the installation of these facilities. While runoff patterns and concentrations could be altered by grading activities, such changes would be minimal and the rate or amount of surface runoff resulting from proposed Project construction activities is minimal. In accordance with Mitigation Measure MM 4.10-2, a drainage plan would be prepared that would include engineering recommendations to be incorporated into the proposed Project and applied within the site boundary. Engineering recommendations would include measures to offset increases in stormwater runoff that would result from the proposed Project, as well as implementation of design measures to minimize or manage flow concentration and changes in flow depth or velocity to minimize any potential flooding on- or off-site.

Summary

With the implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2, proposed Project impacts regarding flooding would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.10-1 and MM 4.10-2, as described above.

Level of Significance after Mitigation

Less than significant.

Impact 4.10-5: Would the Project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

The Project site is located in a rural area with existing infrastructure consisting of a number of agricultural ditches and culverts that collect and convey agricultural-related irrigation and stormwater runoff. Operation of the proposed Project would include capturing runoff from the added impervious area with the implementation of permanent stormwater control measures. During construction, operation, and decommissioning, the proposed Project would be required to adhere to Kern County Public Works Department storm water requirements, which include measures to address stormwater controls regarding management of runoff rates and water quality, including controlling erosion and protection of water quality of stormwater runoff. The drainage plan required by Mitigation Measure MM 4.10-2 would detail any necessary design features required to properly control stormwater runoff on-site; design features would be appropriately sized for storm events per the final hydrology study performed for the site. Impacts related to storm water drainage systems would be less than significant.

As discussed above, the proposed Project would remove an existing dairy farm and all associated infrastructure. The disposal of animal waste, if not managed appropriately, could contribute to polluted runoff, specifically heavy nitrates in surface water. In addition to the mitigation measures above, Mitigation Measure MM 4.10-3 would require proper removal of animal waste to avoid improper management of animal waste and runoff. Mitigation Measure MM 4.10-3 would ensure that all animal waste has been removed at least three months prior to the start of construction and requires disposal consistent with the Dairy's Nutrient Management Plan approved by the RWQCB. Proper disposal methods include transportation to a disposal facility or composting facility, or transferred to other farms within Kern County, as legally permissible. Therefore, Mitigation Measure MM 4.10-3 would avoid animal waste from contaminating surface water runoff.

PG&E Midway Substation Upgrades

As described above in Impact 4.10-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the point-of-interconnection for the proposed Project. Construction, grading, and excavation activities will be required for the installation of these facilities. Therefore, PG&E should implement Mitigation Measures MM 4.10-1 and MM 4.10-2 to reduce potential for stormwater pollution from uncontrolled erosion. Finally, as described above, PG&E would implement BMPs (BMP 8 through 12) that requires the implementation of water quality and sediment control BMPs (Appendix M).

Summary

With the implementation of Mitigation Measures MM 4.10-1 through MM 4.10-3, proposed Project impacts regarding stormwater runoff would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.10-1 through MM 4.10-3, as described above.

Level of Significance after Mitigation

Less than significant.

Impact 4.10-6: Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner that would impede or redirect flood flows?

According to the FEMA FIRM map illustrated in **Figure 4.10-3:** *Federal Emergency Management Agency Flood Insurance Rate Map*, the entirety of the proposed Project is located in FEMA Zone X, an area of minimal flood hazard. The proposed Project would include a drainage plan that would reduce the potential for increased flooding from construction activities related to the proposed Project. The proposed Project structure(s), including the O&M facility, solar facilities or related appurtenances would not be sited within a FEMA 100-year flood hazard area. As described above, the Project site is relatively flat and would remain so post-construction, and decommissioning of the proposed Project would not alter the existing drainage pattern. Thus, through conformance with all requirements contained within the Kern County Grading Ordinance and implementation of Mitigation Measure MM 4.10-2, long-term effects on drainage patterns and the potential to result in flooding on- or off-site, would be less than significant.

PG&E Midway Substation Upgrades

The Midway Substation and proposed transmission line improvements are located within the FEMA Zone X, an area of minimal flood hazard. PG&E would implement BMPs that would minimize alteration of existing drainage patterns and minimize or manage flow concentration to minimize any potential flooding or the redirection of flood flows.

Summary

With the implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2, proposed Project impacts regarding flood flows would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.10-1 and MM 4.10-2, as described above.

Level of Significance after Mitigation

Less than significant.

Impact 4.10-7: Would the Project result in risk release of pollutants due to project inundation and location in a flood hazard, tsunami, or seiche zone?

As noted previously, the entirety of the proposed Project is located in FEMA Zone X, an area of minimal flood hazard. As discussed more thoroughly in Section 4.9, *Hazards and Hazardous Materials*, the proposed Project would not include the use, storage, or disposal of significant quantities of hazardous materials which could be released during a flood. During construction and operation, Mitigation Measure MM 4.9-1 would require the Project proponent to provide a Hazardous Materials Business Plan that would 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 impacts 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. Hazardous materials would be used outside of natural drainage channels to the extent feasible during construction and operation of the proposed Project. Implementation of Mitigation Measure MM 4.9-1 would minimize impacts and risk of release of pollutants due to project inundation. Additionally, per Mitigation Measure MM 4.10-2, a drainage plan would be prepared in accordance with the Kern County Development Standards and Kern County Code of Building Regulations. The drainage plan would include measures to offset increases in stormwater runoff that would result from implementation of the proposed Project, as well as design measures to minimize or manage flow concentration and changes in flow depth or velocity. The Floodplain Management Ordinance outlines floodplain development requirements to avoid the potential for flood damage to release pollutants into the environment.

The Project site is more than 100 miles from the nearest coastline and within a valley surrounded by mountainous terrain; therefore, the Project site is not within a tsunami zone.

A seiche is a large wave generated in an enclosed body of water in response to ground-shaking. The proposed Project is not within a seiche zone and there are no significant waterbodies at are located at higher elevations of the Project site that could inundate the Project site due to a seiche event.

With the implementation of Mitigation Measures MM 4.9-1 and MM 4.10-2, proposed Project construction, operation, and decommissioning would not result in a risk of release of pollutants due to proposed Project inundation in flood hazard, tsunami, or seiche zones. With the implementation of the Mitigation Measures MM 4.9-1 and MM 4.10-2, impacts would be less than significant.

PG&E Midway Substation Upgrades

The Midway Substation and transmission line improvements are is located more than 100 miles from the nearest coastline and, therefore, there is no risk of pollutant discharge during a tsunami or seiche events. As discussed, the Midway Substation and transmission line improvements are not

located within a flood zone, and PG&E would implement BMPs to ensure the proper handling, storage, transport, and disposal of any hazardous materials.

Summary

With the implementation of Mitigation Measures MM 4.9-1 and MM 4.10-2, proposed Project impacts regarding pollutant release would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.9-1 and MM 4.10-2, as described above.

Level of Significance after Mitigation

Less than significant.

Impact 4.10-8: Would the Project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The Project site is located within the Central Valley RWQCB jurisdiction and is subject to the applicable requirements of the Basin Plan administered by the RWQCB in accordance with the Porter-Cologne Water Quality Control Act. Though the Project site contains agricultural ditches and culverts, the site does not contain any surface waterbody (for example, creek, river, pond, or lake), nor is it adjacent to a site to which the Basin Plan would apply. Thus, the proposed Project would not obstruct the implementation of a water quality control plan.

Regarding groundwater management, as described above, the Project site is located within the Kern County Subbasin, where DWR identifies the Kern County Groundwater Subbasin as a high-priority, critically over drafted basin. As such, the Subbasin has 20 GSAs that have developed seven GSPs to achieve basin sustainability. The Project site is located in an area managed by two GSAs and GSPs, including the KGA GSP and Buena Vista Water Storage District (BVWSD) GSP. The majority of the Project site is covered by the KGA GSP. The KGA, through a joint powers agreement, represents 12 member agencies in the Subbasin, including SWSD and RRBWSD. SWSD also formed a GSA and prepared a GSP in conjunction with, and in support of, the Subbasin wide GSP developed by KGA. Although SWSD coordinates with KGA for SGMA purposes, its own GSP can act as a standalone GSP governing its management area. BVWSD is an independent GSA and as such prepared its own GSP. The BVWSD GSP was developed in coordination with the KGA GSP and the two are in reasonable agreement in terms of the sustainable management criteria and projects and management actions that will be implemented to achieve basin sustainability. The KGA GSP identifies more than 150 projects and management actions designed to help achieve basin sustainability, such as tiered pricing for groundwater pumping, land fallowing, and enhanced groundwater recharge. Although the proposed Project would use an estimated 1,000 AFY for construction and 7 AFY for O&M, the average water demand for irrigated agricultural would be significantly higher (several thousand acre-feet per year) than that of the project, such that conversion of the Project site to a less-intensive water use (from agriculture to solar electric) is supportive of the KGA's GSP long-term sustainability goal (Appendix I.2).

As previously discussed, construction and operation of the proposed Project is not anticipated to substantially decrease groundwater supplies or interfere with groundwater recharge such that the proposed Project may impede sustainable groundwater management of the San Joaquin Valley Groundwater Basin. The Kern County Groundwater Subbasin is currently critically over drafted and significant reductions in pumping must occur to achieve a sustainable yield. Project water demand is less than the historical use at the Project site and would reduce groundwater use in the Subbasin. Due to the temporary nature of construction water demands, and due to the small size of the proposed Project's operational demands compared to existing and historical water demands on the Project site, the proposed Project would be consistent with the Subbasin's management actions, including fallowing programs to achieve sustainable management of the Subbasin.

PG&E Midway Substation Upgrades

As described above in Impact 4.10-1, the upgrades to the Midway Substation's 500-kV yard within the Midway Substation property boundaries and the new transmission line improvements would entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. PG&E would implement BMPs (BMP 8 through 12) that requires certain erosion control and other water quality control measures to be implemented, such that the PG&E Upgrades would not conflict with a water quality control plan.

Summary

The proposed Project would not conflict with or obstruct implementation of a water quality control or groundwater management plan during construction, operation, and decommissioning activities. No impacts would occur.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Not applicable—no impacts would occur.

4.10.5 Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

As described in Chapter 3, *Project Description*, of this Draft EIR, multiple projects are proposed throughout Kern County and the Southern San Joaquin Valley, including solar facilities, agricultural trucking facilities, telecommunication infrastructure, and commercial development.

Similar to the proposed Project, all cumulative projects would not discharge to waters of the United States due to their location within the San Joaquin Valley, which is effectively a closed basin with no outlet to the Pacific Ocean. All projects that would not retain all runoff on-site would be required to prepare a SWPPP, just as with the proposed Project under Mitigation Measure MM 4.10-1, which

would include BMPs designed to prevent the mixture of sediment and other pollutants with stormwater and degrading water quality. Furthermore, the proposed Project would implement a Hazardous Materials Business Plan as part of Mitigation Measure MM 4.9-1 that would require appropriate handling of hazardous materials on-site to ensure they do not enter stormwater and affect water quality. All other projects in the vicinity that would handle hazardous materials would also be required to comply with hazardous material regulations. Therefore, impacts associated with water quality degradation would not be cumulatively considerable, and the proposed Project would not contribute to a cumulative impact on water quality.

With regard to water supply, the proposed Project would require temporary, short-term water supply during construction, with primary water needs occurring during earth-moving activities for dust control. The WSA (Appendix I.2) includes a Will-Serve Letter from the SWSD stating the SWSD's willingness to provide up to 3,500 AF for construction water and 7 AF for operations. The WSA determined that there are sufficient supplies for proposed Project construction, operation, and decommissioning. Further, proposed Project water demand is less than that of the historical use at the Project site and would reduce groundwater use in the Subbasin for sustainable management of the Subbasin. The proposed Project would be consistent with the Subbasins management actions, including fallowing programs to achieve sustainable management of the Subbasin. Therefore, the proposed Project would not contribute to a cumulative impact regarding water use or groundwater management.

With respect to erosion, drainage, and flooding, the Project proponent would implement Mitigation Measure MM 4.10-2**,** which would minimize direct impacts regarding erosion, drainage, and flooding. It is anticipated that other cumulative scenario projects would be required to implement similar measures, in order to minimize erosion, drainage, and flooding related impacts. Additionally, drainage related impacts from cumulative scenario projects would be primarily localized. Therefore, cumulative scenario impacts on erosion, drainage, and flooding are not anticipated to be cumulatively considerable, and the proposed Project would not contribute to a cumulative impact on flooding, erosion, or drainage.

PG&E Midway Substation Upgrades

As described above in Impacts 4.10-1 through 4.10-8, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the point-of-interconnection for the proposed Project. PG&E would implement BMPs (BMP 8 through 12) that requires erosion control and pollution control methods during construction and decommissioning activities, as well as those that minimize alteration of existing drainage patterns, minimize or manage flow concentration to minimize any potential flooding, and ensure the proper handling, storage, transport, and disposal of any hazardous materials (Appendix M). PG&E's water demand also represent a small portion of overall demand, such that it would not impede sustainable groundwater management.

Summary

Therefore, with the implementation of Mitigation Measures MM 4.9-1 (Section 4.9, *Hazards and Hazardous Materials*), and MM 4.10-1 and MM 4.10-2, the proposed Project will not make a cumulatively considerable contribution to a significant cumulative impact involving hydrology and water quality.

Mitigation Measures

Implementation of Mitigation Measures MM 4.9-1 (Section 4.9, *Hazards and Hazardous Materials*), MM 4.10-1, and MM 4.10-2 would be required.

Level of Significance

Cumulative impacts would be less than significant.

Section 4.11

Land Use and Planning

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Section 4.11
Land Use and Planning

4.11.1 Introduction

This section of the Draft Environmental Impact Report (EIR) describes the affected environmental and regulatory settings for land use and planning. It also describes the impacts related to land use and planning that would result from implementation of the proposed Buttonbush Solar and Storage Project (proposed Project).

The information in this section includes a review of the proposed Project's consistency with applicable, environmental-related requirements of regional and local land use plans and regulations, for example, the Kern County General Plan [KCGP], Buttonwillow Community Development Plan [Buttonwillow Specific Plan], and Kern County Zoning Ordinance.

4.11.2 Environmental Setting

Existing Conditions

The proposed Project generally straddles and crosses Interstate-5 and is east of Buttonwillow Raceway Park, north of Highway 58, and south of Kimberlina Road. The proposed Project site is divided into seven distinct sites (Sites 1 through 6, and Site 8) (Chapter 3, *Project Description*, **Figures 3-2A–F**, of this Draft EIR). The entire site is located primarily on relatively flat terrain, and currently used for primarily for agricultural operations or is vacant, undisturbed land; and rural residences scattered throughout the area. The proposed Project site is partially located within the community of Buttonwillow and, at the nearest point, the proposed Project site is approximately 3 miles southwest of the City of Shafter, 6 miles southwest of the City of Wasco, and 10 miles west of the City of Bakersfield.

The proposed Project is located on approximately 11,983 acres of privately owned land of which approximately: 10,689 acres are subject to active Williamson Act Land Use or farmland security zone contracts; 10,582 acres are identified on the Farmland Mapping and Monitoring program (FMMP) as containing Important Farmland; and 5,784 acres are identified as Prime Farmland.

The nearest public airports are the Elk Hills – Buttonwillow Airport, located in Buttonwillow, California, approximately 3.5 miles (at the closest point) south of the proposed Project site, and the Wasco-Kern County Airport located at 14101 Airport Rd, Wasco, CA 93280, California 93263, approximately 7.8 miles (at the closest point) northeast of the proposed Project site. The proposed Project site is not located within any safety or noise contour zones for these airports or within any designated airport land use plan areas.

As discussed in Section 4.10, *Hydrology and Water Quality*, of this Draft EIR, the proposed Project site is designated as Zone "X" on the Flood Insurance Rate Map as issued by the Federal Emergency Management Agency (FEMA), which designates areas of minimal flood hazard that are determined to be outside of the 0.2 percent floodplain.

As discussed in Section 4.4, *Biological Resources*, of this Draft EIR, the proposed Project site includes approximately 104.25 acres of California Department of Fish and Wildlife (CDFW) jurisdictional features, including 91.28 acres of wetlands and 12.97 acres of non-wetland waters/streambeds and ponds. These same features are also under the jurisdiction of the Regional Water Quality Control Board (RWQCB). In addition, while there are several ponded areas, sparsely vegetated alkaline areas, and some wetlands, these features are not likely subject to United States Army Corps of Engineers (USACE) jurisdiction, as these features are isolated and do not meet the relatively permanent or significant nexus standard as a water of the United States.

As discussed in Section 4.12, *Mineral Resources*, of this Draft EIR, the proposed Project site is not located on lands designated as a Mineral Resource Zone (MRZ) MRZ-1 or MRZ-2 by the Department of Conservation (DOC) State Mining and Geology Board, where known or inferred mineral occurrences of undetermined mineral resource significance are present (CGS 2009).

General Plan Land Use Designations

The KCGP designates the underlying land use designations for lands within the proposed Project site. **Table 4.11-1:** *Kern County General Plan Classifications Within the Site*, lists the predominant land use designations applicable to the proposed Project site. Specifically, the KCGP designates portions of the proposed Project site as 8.1 Intensive Agriculture, 8.1/2.3 Intensive Agriculture/Shallow Groundwater, 8.3 Extensive Agriculture, 8.4 Mineral and Petroleum, 8.5 Resource Management, and 4.1 Accepted Community Plan Area. The majority of the proposed Project site is subject to the 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size) land use designation (Kern County 2009).

Table 3-1: *Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, Williamson Act Status, and Parcel Acreage by Site*, in Chapter 3, *Project Description*, of this Draft EIR, includes the Tax Assessor's Parcels, land use designations, Williamson Act status, and parcel acreage, for proposed Project Sites 1 through 6 and 8. Although the proposed Project does not require amendments to the KCGP or Buttonwillow Specific Plan land use elements, the proposed Project would require amendments to the circulation elements in order to remove future road reservations from the proposed Project site. Please see Chapter 3, *Project Description*, Section 3.3, *Discretionary Actions,* and Section 3.11, *Entitlements Required,* of this Draft EIR, for the land use entitlements (including general plan amendments) and corresponding site numbers that are required for the proposed Project.

Table 4.11-1: Kern County General Plan Classifications Within the Project Site

KCGP Land Use Code	KCGP Land Use Designation Name
4.1	Accepted Community Plan Area
8.1	Intensive Agriculture (minimum 20 acres)
8.1/2.3	Intensive Agriculture (minimum 20 acres)/Shallow Groundwater
8.3	Extensive Agriculture (minimum 20 - or 80- acres)
8.4	Mineral and Petroleum (minimum 5 acres)
8.5	Resource Management (minimum 20- or 80- acres)

Key: KCGP = Kern County General Plan

Existing Zoning

The Kern County Zoning Ordinance (KCZO) regulates land uses within the proposed Project site consistent with the underlying KCGP land use designations, by use of a zoning map that delineates the boundaries of each zoning district. The KCZO provides the purpose of the districts, specifies permitted and conditional uses, and establishes development and performance standards for every lot or parcel within the unincorporated areas of the county.

The entire proposed Project site is located within the Exclusive Agriculture (A) zone. This district is primarily intended for agricultural uses, including the growing and harvesting of crops and the breeding and raising of animals. This district also allows for uses that are incidental to agricultural uses, such as animal products processing when the livestock is already either produced or grown on the land. Some resource extraction and energy development are allowed uses, such as mineral exploration and oil or gas exploration.

The solar photovoltaic (PV) and battery energy storage facility are allowed within the A Zone District with the approval of a discretionary Conditional Use Permit (CUP). CUPs are processed pursuant to the requirements of the KCZO, Chapter 19.104, *Conditional Use Permits*. Pursuant to Section 19.104.040 of the KCZO, the decision-making authority may approve or conditionally approve an application for a CUP if it can adopt all the following findings:

A. The proposed use is consistent with the goals and policies of the applicable General or Specific Plan.

B. The proposed use is consistent with the purpose of the applicable district or districts.

C. The proposed use is listed as a use subject to a CUP in the applicable zoning district or districts or the use is determined to be similar to a listed conditional use in accordance with the procedures in Sections 19.08.030 through 19.0.080 of the KCZO.

D. The proposed use meets the minimum requirements of the KCZO applicable to the use.

E. The proposed use will not be materially detrimental to the health, safety, and welfare of the public or to property and residents in the vicinity.

Conditional Use Permits

The following provides the CUPs that are associated with each area included in the overall proposed Project site.

Site 1:

- CUP No. 17 Map 98 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 1 generating capacity of 441 megawatts (MW), and approximately 4,000 megawatt hours (MWh) of energy storage, on approximately 1,300 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.G of the KCZO.
- CUP No. 19 Map 98 to allow for the construction and operation of a microwave tower on approximately 77 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.F of the KCZO.
- CUP No. 25 Map 99 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 1 generating capacity of 441 MW, and approximately 4,000 MWh of energy storage, on approximately 989 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.G of the KCZO.

Site 2:

- CUP No. 14 Map 77 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 2 generating capacity of 93 MW, and approximately 1,600 MWh of energy storage, on approximately 412 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.G of the KCZO.
- CUP No. 20 Map 77 to allow for the construction and operation of a microwave tower on approximately 80 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.F of the KCZO.
- CUP No. 18 Map 98 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 2 generating capacity of 93 MW, and approximately 1,600 MWh of energy storage, on approximately 132 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.G of the KCZO.

Site 3:

- CUP No. 15 Map 77 to allow for the construction and operation of a commercial-scale solar facility with a Site 3 generating capacity of 108 MW on approximately 644 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.G of the KCZO.

Site 4:

- CUP No. 16 Map 77 to allow for the construction and operation of a commercial-scale solar facility with a Site 4 generating capacity of 38 MW on approximately 395 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.G of the KCZO.

Site 5:

- CUP No. 26 Map 99 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 5 generating capacity of 404 MW, and approximately 4,800 MWh of energy storage, on approximately 2,302 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.G of the KCZO.
- CUP No. 27 Map 99 to allow for the construction and operation of a microwave tower on approximately 153 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.F of the KCZO.
- CUP No. 28 Map 99 to allow for the construction and operation of a microwave tower on approximately 318 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.F of the KCZO.
- CUP No. 61 Map 100 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 5 generating capacity of 404 MW, and approximately 4,800 MWh of energy storage, on approximately 375 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.G of the KCZO.

Site 6:

- CUP No. 17 Map 78 to allow for the construction and operation of a commercial-scale solar facility with a Site 6 generating capacity of 453 MW, and approximately 4,800 MWh of energy storage, on approximately 2,409 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.G of the KCZO.

Site 8:

- CUP No. 12 Map 54 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 8 generating capacity of 463 MW, and approximately 800 MWh of energy storage, on approximately 589 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.G of the KCZO.
- CUP No. 17 Map 77 to allow for the construction and operation of a commercial-scale solar facility with a combined total Site 8 generating capacity of 463 MW, and approximately 800 MWh of energy storage, on approximately 2,436 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.G of the KCZO.
- CUP No. 18 Map 77 to allow for the construction and operation of a microwave tower on approximately 235 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.F of the KCZO.
- CUP No. 19 Map 77 to allow for the construction and operation of a microwave tower on approximately 543 acres within the A (Exclusive Agriculture) Zone District pursuant to Section 19.12.030.F of the KCZO.

Williamson Act and Farmland Security Zone Contract

As shown in Chapter 3, *Project Description*, Section 3.3, *Discretionary Actions*, **Table 3-2:** *Project Assessor Parcel Numbers, Existing Map Codes, Existing Zoning, Williamson Act Status, and Project Parcel Acreage by Site*, in this Draft EIR, approximately 10,689 acres of the proposed Project site are currently subject to Williamson Act contracts. A utility scale solar facility is not considered a compatible use in Kern County's Williamson Act Standard Uniform Rules. Therefore, the cancellation or nonrenewal of applicable contracts is required for approximately 10,689 acres of farmland, as listed by site below. See Chapter 3, *Project Description*, Section 3.3, *Discretionary Actions*, of this Draft EIR, for additional information regarding the proposed cancellation and nonrenewal of the Williamson Act and Farmland Security Zone Contract that would result from the proposed Project.

Site 1:

- Williamson Act Land Use Contract (WALUC) and Farmland Security Zone Contract Cancellations: 2,071 acres

Site 2:

- Williamson Act Land Use Contract Cancellations: 403 acres

Site 3:

- Williamson Act Land Use Contract Cancellations: 644 acres

Site 4:

- Williamson Act Land Use Contract Cancellations: 395 acres

Site 5:

- Williamson Act Land Use Contract Cancellations: 2,678 acres

Site 6:

- Williamson Act Land Use Contract Cancellations: 1,641 acres

Site 8:

- Williamson Act Land Use Contract Cancellations: 2,858 acres

Surrounding Land Uses

Existing land uses surrounding the proposed Project site consist of large agricultural parcels sparsely occupied by farm and rural residential development. The zoning classification surrounding the proposed Project site is predominantly A (Exclusive Agriculture). One single-family dwelling unit is allowed per legal lot and, consequently, there is low-density residential development within the proposed Project vicinity. In addition, residential development (mostly single-family dwellings) are clustered within the unincorporated community of Buttonwillow, south and west of Site 1. The nearest school is Buttonwillow Elementary School, located approximately one mile (at the closest point) southwest of Site 1 at 42600 Highway 58 Buttonwillow, California 93206. The Buttonwillow Recreation and Park District manages a park and facilities on properties along State Route 58, Milo Avenue, and Meadow Street in the eastern portion of Buttonwillow, approximately 420 feet (at the closest point) to the west of the Pacific Gas & Electric (PG&E) Midway Substation.

Surrounding lands have the following KCGP map code designations: 4.1 (Accepted Community Plan Area); 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size); 8.1/2.3 (Intensive Agriculture, Min. 20-Acre Parcel Size/Shallow Groundwater); 8.3 (Extensive Agriculture, Min. 20- or 80-acre parcel size); 8.4 (Mineral and Petroleum, Min. 5-Acre Parcel Size); 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size); 6.3 (Highway Commercial); and 7.2 (Service Industrial) (**Table 4.11-2:** *Existing Project Site and Surrounding Existing Land Use, General Plan Map Code Designations, and Zoning*, below). As stated above, these map code designations guide future development pursuant to the regulations in Chapter 19.12 of the KCZO.

Table 4.11-2: Existing Project Site and Surrounding Existing Land Use, General Plan Map Code Designations, and Zoning

Location	Existing Land Use	Existing General Plan Map Code Designation	Existing Zoning Classification
Project Site	Active Agricultural Activities, Tjaarda Dairy, Vacant Open Space, Rural Residences, Canals, and Irrigation Ponds	*Kern County General Plan* ▪ 2.3 (Shallow Groundwater) ▪ 4.1 (Accepted Community Plan Area) ▪ 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size) ▪ 8.3 (Extensive Agriculture, Min. 20- or 80-Acre Parcel Size) ▪ 8.4 (Mineral and Petroleum, Min. 5-Acre Parcel Size) ▪ 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size) *Buttonwillow Community Development Plan* ▪ Agriculture	▪ A (Exclusive Agriculture)
North	Active Agricultural Activities, Vacant Open Space, Rural Residences, County Landfill, Highway 46	*Kern County General Plan* ▪ 8.1 (Intensive Agriculture, min. acre parcel size) ▪ 8.1/2.3 (Intensive Agriculture, Min. 20-Acre Parcel Size) ▪ 8.3 (Extensive Agriculture, Min. 20-Acre Parcel Size) ▪ 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size)	▪ A (Exclusive Agriculture)
East	Active Agricultural Activities, Dairies, Oil and Gas Production, City of Shafter, Rural Residences, Highway 43	*Kern County General Plan* ▪ 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size) ▪ 8.1/2.3 (Intensive Agriculture, Min. 20-Acre Parcel Size/Shallow Groundwater) ▪ 8.3 (Extensive Agriculture, Min. 20-Acre Parcel Size) ▪ 8.5 (Resource Management, Min. 20- or 80-Acre Parcel)	▪ A (Exclusive Agriculture) ▪ A-1 (Limited Agriculture) ▪ C-2 PD (General Commercial, Precise Development) ▪ M-2 PD (Medium Industrial, Precise Development)

Table 4.11-2: Existing Project Site and Surrounding Existing Land Use, General Plan Map Code Designations, and Zoning

Location	Existing Land Use	Existing General Plan Map Code Designation	Existing Zoning Classification
South	Active Agricultural Activities, Community of Buttonwillow, Community of Rio Bravo, Rural Residences, Industrial Activities, Closed Landfill, State Route 58	*Kern County General Plan* ▪ 4.1 (Buttonwillow Community Development Plan) ▪ 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size) ▪ 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size) *Buttonwillow Community Development Plan* ▪ Park ▪ Public Utility ▪ Residential ▪ Agricultural ▪ Light Industrial ▪ Sanitary Landfill	▪ A (Exclusive Agriculture) ▪ A-1 (Limited Agriculture) ▪ R-1 (Low-Density residential) ▪ R-2 (Medium-Density Residential) ▪ C-2 (General Commercial) ▪ M-1 (Light Industrial) ▪ M-2 (Medium Industrial) ▪ E (Estate)
West	Active Agriculture land, Undisturbed Vacant Open Space, Raceway, Industrial Activities, Rural Residences, Interstate 5	*Kern County General Plan* ▪ 6.3 (Highway Commercial) ▪ 7.2 (Service Industrial) ▪ 8.1 (Intensive Agriculture Min 20-Acre Parcel Size) ▪ 8.3 (Intensive Agriculture Min. 5-Acre Parcel Size) ▪ 8.4 (Mineral and Petroleum) ▪ 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size)	▪ A (Exclusive Agriculture) ▪ A-1 (Limited Agriculture)

4.11.3 Regulatory Setting

State

Various state agencies have jurisdiction over local agencies and have plans and programs that apply to the proposed Project site. They include, but are not limited to, the Amended Kern Groundwater Authority Groundwater Sustainability Plan, Kern Integrated Regional Water Management Plan, Kern County Integrated Regional Water Management Plan, Recovery Plan for Upland Species of the San Joaquin Valley, California Air Quality Plans, California State Implementation Plans, One-Hour Ozone Plan, Eight-Hour Ozone Plan, PM_{10} Maintenance Plan, $PM_{2.5}$ Plans, Air Quality Conformity Determination for Transportation Plans, and CDFW recovery and habitat plans for endangered species. Information on these plans can be found in Section 4.4 *Biological Resources*, Section 4.3, *Air Quality*, Section 4.8, *Greenhouse Gases*, and Section 4.10, *Hydrology and Water*, of this Draft EIR.

Regional

The Kern Council of Governments (Kern COG) is a regional transportation agency which is responsible for preparing the Regional Transportation Plan (RTP) that examines long-range transportation challenges, opportunities, and needs for Kern County. The current (2022) RTP is a 24-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multi-modal transportation systems in Kern County (Kern COG 2022). The 2022 RTP includes a: policy element that is shaped by goals, policies, and performance indicators; description of planning assumptions for regional growth and future needs for travel and goods movement; Sustainable Communities Strategy (SCS) that identifies planning strategies and illustrative development patterns that would reduce greenhouse gas emissions; and plan of action for the region to pursue to meet identified transportation needs. The 2022 RTP/SCS was developed through a continuing, comprehensive, and cooperative planning process, and facilitates effective coordination between local, regional, state, and federal agencies. The RTP/SCS must be updated every four years; Kern COG currently is preparing an update to the 2022 RTP/SCS which is anticipated for adoption in 2026.

The 2022 RTP is primarily focused on achieving an integrated multi-modal transportation network that will benefit the mobility, economy, health and sustainability of the region. There are seven core goals that work to achieve the overall goal of the 2022 RTP, however, mobility is considered the plan's highest goal. The mobility goal and others are as follows:

1) Mobility – Improve the mobility of people and freight.

2) Accessibility – Improve accessibility to, and the economic wellbeing of, major employment and other regional activity centers.

3) Reliability/Safety – Improve the reliability and safety of the transportation system.

4) Efficiency – Maximize the efficiency and cost effectiveness of the existing and future transportation system.

5) Livability/Quality of Life – Promote livable communities and satisfaction of consumers with the transportation system.

6) Sustainability – Provide for the enhancement and expansion of the system while minimizing effects on the environment.

7) Equity – Ensure an equitable distribution of the benefits among various demographic and user groups.

Local

Land use and planning decisions within and adjacent to the proposed Project site are guided and regulated by the KCGP, the Buttonwillow Specific Plan, and KCZO. The KCGP and Buttonwillow Specific Plan contain goals, objectives, and policies and provides an overall foundation for establishing land use patterns. Applicable environmentally related goals, objectives, policies, and implementation measures are provided below.

The KCZO contains regulations through which the KCGP and Buttonwillow Specific Plan's provisions are implemented. The most relevant environmentally related regulations pertaining to the proposed Project are presented below. Other local and county plans and regulations (for example, Kern County Building Code regulations) relevant to the proposed Project are referenced as applicable, in each Section of this Draft EIR.

Kern County General Plan

The proposed Project site is located within the KCGP and, therefore, is subject to applicable policies and measures of the KCGP. The Land Use, Conservation, and Open Space Element, Circulation Element, Noise Element, Safety Element, and Energy Element of the KCGP include the following environmentally related goals, policies, and implementation measures that apply to the proposed Project.

Chapter 1. Land Use, Conservation, and Open Space Element

1.3. Physical and Environmental Constraints

Goals

Goal 1. To strive to prevent loss of life, reduce personal injuries, and property damage, minimize economic and social diseconomies resulting from natural disaster by directing development to areas which are not hazardous.

Policies

Policy 1. Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained ((Map Code 2.1 (Seismic Hazard), Map Code 2.2 (Landslide), Map Code 2.3 (Shallow Groundwater), Map Code 2.5 (Flood Hazard), Map Codes from 2.6 – 2.9, Map Code 2.10 (Nearby Waste Facility), and Map Code 2.11 (Burn Dump Hazard) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact [*sic*].

Policy 3. Zoning and other land use controls will be used to regulate and, in some instances, to prohibit development in hazardous areas.

Policy 11. Protect and maintain watershed integrity within Kern County.

Implementation Measures

Implementation Measure N. Applicants for new discretionary development should consult with the appropriate Resource Conservation District and the California RWQCB regarding soil disturbances issues.

1.4. Public Facilities and Services

Goals

Goal 1. Kern County residents and businesses should receive adequate and cost-effective public services and facilities. The County will compare new urban development proposals and land use changes to the required public services and facilities needed for the proposed Project.

Goal 5. Ensure that adequate supplies of quality (appropriate for intended use) water are available to residential, industrial, and agricultural users within Kern County.

Goal 9. Serve the needs of industries and Kern County residents in a manner that does not degrade the water supply and the environment and protect the public health and safety by avoiding surface and subsurface nuisances resulting from the disposal of hazardous wastes, irrespective of the geographic origin of the waste.

Policies

Policy 1. New discretionary development will be required to pay its proportional share of the local costs of infrastructure improvements required to service such development.

Policy 3. Individual projects will provide availability of public utility service as per approved guidelines of the serving utility.

Policy 6. The County will ensure adequate fire protection to all Kern County residents.

Policy 7. The County will ensure adequate police protection to all Kern County residents.

Implementation Measures

Implementation Measure B. Determine local costs of County facility and infrastructure improvements and expansion which are necessitated by new development of any type and prepare a schedule of charges to be levied on the developer at the site of approval of the Final Map. This implementation can be effectuated by the formation of a County work group.

Implementation Measure C. Project developers shall coordinate with the local utility service providers to supply adequate public utility services.

Implementation Measure D. Involve utility providers in the land use and zoning review process.

Implementation Measure J. Ensure that the Superintendent of Schools and the respective school districts are informed of development proposals and are afforded the opportunity of evaluating their potential effect on the physical capacity of school facilities.

Implementation Measure L. Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in the County shall not be approved unless adequate fire protection facilities and resources can be provided.

Implementation Measure N. Secure complete and accurate information on all hazardous wastes generated, handled, stored, treated, transported, and disposed of within or through Kern County.

1.5 Special Treatment Areas

Goals

Goal 1. To recognize the validity of existing Specific Plan and Rural Community Plan decisions and to identify areas for which similar detailed planning efforts should be undertaken in the future so as to best meet the needs and concerns of local residents.

Policies

Policy 1. Rural communities are historically identifiable small-scale non-urban settlements located in outlying areas of the County which contain a mixture of residential and supportive commercial and other uses serving the community and the surrounding rural population. The County will ensure

that the unique character of these communities is preserved and enhanced by recognizing the scale, density, size, and composition of development as summarized in Appendix B.

Implementation Measures

Implementation Measure A. Where particular policies or standards are not addressed within a Special Treatment Area, the provisions of the KCGP shall govern.

1.9. Resource

Goals

Goal 1. To contain new development within an area large enough to meet generous protections of foreseeable need, but in locations that will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources or diminish the other amenities that exist in the County.

Goal 2. Protect areas of important mineral, petroleum, and agricultural resource potential for future use.

Goal 3. Ensure the development of resource areas minimize effects on neighboring resource lands.

Goal 4. Encourage safe and orderly energy development within the County, including research and demonstration projects, and to become actively involved in the decision and actions of other agencies as they affect energy development in Kern County.

Goal 5. Conserve Prime agriculture lands from premature conversion.

Goal 6. Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.

Policies

Policy 7. Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible residential, commercial, and industrial subdivision and development activities.

Policy 10. To encourage effective groundwater resource management for the long-term economic benefit of the County the following shall be considered:

a. Promote groundwater recharge activities in various Zone Districts.

b. Support for the development of Urban Water Management Plans and promote Department of Water Resources grant funding for all water providers.

c. Support the development of groundwater management plans.

d. Support the development of future sources of additional surface water and groundwater, including conjunctive use, recycled water, conservation, additional storage of surface water and groundwater and desalination.

Policy 11. Minimize the alteration of natural drainage areas. Require development plans to include necessary mitigation to stabilize runoff and silt deposition through utilization of grading and flood protection ordinances.

Policy 12. Areas identified by the Natural Resource Conservation Service (formerly Soil Conservation Service) as having high range-site value should be conserved for Extensive Agriculture uses or as Resource Reserve, if located within a County water district.

Policy 14. Emphasize conservation and development of identified mineral deposits.

Policy 16. The County will encourage development of alternative energy sources by tailoring its Zoning and Subdivision Ordinances and building standards to reflect Alternative Energy Guidelines published by the California State Energy Commission.

Policy 25. Discourage incompatible land use adjacent to Map Code 8.4 (Mineral and Petroleum) areas.

Implementation Measures

Implementation Measure B. Areas designated as Resource Reserve (Map Code 8.2), Extensive Agriculture (Map Code 8.3), Resource Management (Map Code 8.5) that are under Williamson Act Contracts or Farmland Security Zone Contracts will have a minimum parcel size of 80 acres until such time as a contract is expired or is cancelled, at which time the minimum parcel size will become 20 acres**.**

Implementation Measure C. The County Planning Department will seek review and comment from the County Engineering and Survey Services Department on the implementation of the National Pollution Discharge Elimination System for all discretionary projects.

Implementation Measure F. Prime agricultural lands, according to the Kern County Interim-Important Farmland map produced by the DOC, which have Class I or II soils and a surface delivery water system shall be conserved through the use of agricultural zoning with minimum parcel size provisions.

Implementation Measure G. Property placed under the Williamson Act/Farmland Security Zone Contract must be in a Resource designation**.**

Implementation Measure H. Use the California Geological Survey's latest maps to locate mineral deposits until the regional and statewide importance mineral deposits map has been completed, as required by the Surface Mining and Reclamation Act.

1.10. General Provisions

Goals

Goal 1. Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.

1.10.1 Public Facilities and Services

Policies

Policy 9. New development should pay its pro rata share of the local cost of expansions in services, facilities, and infrastructure which it generates and upon which it is dependent.

Policy 15. Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by California Environmental Quality Act (CEQA) documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.

Policy 16. The developer shall assume full responsibility for costs incurred in service extensions or improvements that are required to serve the project. Cost sharing or other forms of recovery shall be available when the service extensions or improvements have a specific quantifiable regional significance.

Implementation Measures

Implementation Measure E. All new discretionary development projects shall be subject to the Standards for Sewage, Water Supply, and Preservation of Environmental Health Rules and Regulations administered by the Environmental Health Services Department. Those projects having percolation rates of less than five minutes per inch shall provide a preliminary soils study and site-specific documentation that characterizes the quality of upper groundwater in the project vicinity and evaluation of the extent to which, if any, the proposed use of alternative septic systems will adversely impact groundwater quality. If the evaluation indicates that the uppermost groundwater at the proposed site already exceeds groundwater quality objectives of the RWQCB, or would if the alternative septic system is installed, the applicant shall be required to supply sewage collection, treatment, and disposal facilities.

1.10.2. Air Quality

Policies

Policy 18. The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations and in the valley region to meet attainment goals.

Policy 19. In considering discretionary projects for which an EIR must be prepared pursuant to CEQA, the appropriate decision-making body, as part of its deliberations, will ensure that:

a. All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and

b. The benefits of the proposed Project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to CEQA.

Policy 20. The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District on ministerial permits.

Policy 21. The County shall support air districts' efforts to reduce PM_{10} and $PM_{2.5}$ emissions.

Policy 22. Kern County shall continue to work with the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District toward air quality attainment with federal, state, and local standards.

Implementation Measures

Implementation Measure F. All discretionary permits shall be referred to the appropriate air district for review and comment.

Implementation Measure G. Discretionary development projects involving the use of tractor trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to:

a. Minimizing idling time.

b. Electrical overnight plug-ins.

Implementation Measure H. Discretionary projects may use one or more of the following to reduce air quality effects:

a. Pave dirt roads within the development.

b. Pave outside storage areas.

c. Provide additional low Volatile Organic Compounds (VOC) producing trees on landscape plans.

d. Use of alternative fuel fleet vehicles or hybrid vehicles.

e. Use of emission control devices on diesel equipment.

f. Develop residential neighborhoods without fireplaces or with the use of Environmental Protection Agency certified, low emission natural gas fireplaces.

g. Provide bicycle lockers and shower facilities on-site.

h. Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86).

i. The use and development of park and ride facilities in outlaying [*sic*] areas.

j. Other strategies that may be recommended by the local Air Pollution Control Districts.

Implementation Measure J. The County should include PM_{10} control measures as conditions of approval for subdivision maps, site plans, and grading permits.

1.10.3. Archaeological, Paleontological, Cultural, and Historical Preservation

Policies

Policy 25. The County will promote the preservation of cultural and historic resources which provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measures

Implementation Measure K. Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.

Implementation Measure L. The County shall address archaeological and historical resources for discretionary projects in accordance with CEQA.

Implementation Measure M. In areas of known paleontological resources, the County should address the preservation of these resources where feasible.

Implementation Measure N. The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.

Implementation Measure O. On a project-specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.

1.10.5. Threatened and Endangered Species

Policies

Policy 27. Threatened or endangered plant and wildlife species should be protected in accordance with state and federal laws.

Policy 28. County should work closely with state and federal agencies to assure that discretionary projects avoid or minimize impacts to fish, wildlife, and botanical resources.

Policy 29. The County will seek cooperative efforts with local, state, and federal agencies to protect listed threatened and endangered plant and wildlife species through the use of conservation plans and other methods promoting management and conservation of habitat lands.

Policy 31. Under the provisions of the CEQA, the County, as Lead Agency, will solicit comments from the California Department of Fish and [Wildlife] and the U.S. Fish and Wildlife Service when an environmental document (Negative Declaration, Mitigated Negative Declaration, or EIR) is prepared.

Policy 32. Riparian areas will be managed in accordance with USACE, and the California Department of Fish and Game rules and regulations to enhance the drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.

Implementation Measures

Implementation Measure Q. Discretionary projects shall consider effects to biological resources as required by CEQA.

Implementation Measure R. Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary project subject to CEQA.

Implementation Measure S. Pursue the development and implementation of conservation programs with state and federal wildlife agencies for property owners desiring streamlined endangered species mitigation programs.

1.10.6. Surface Water and Groundwater

Policies

Policy 34. Ensure that water quality standards are met for existing users and future development.

Policy 41. Review development proposals to ensure adequate water is available to accommodate projected growth.

Policy 43. Drainage shall conform to the Kern County Development Standards and the Grading Ordinance.

Policy 44. Discretionary projects shall analyze watershed impacts and mitigate for construction-related and urban pollutants, as well as alterations of flow patterns and introduction of impervious surfaces as required by CEQA, to prevent the degradation of the watershed to the extent practical.

Implementation Measures

Implementation Measure Y. Promote efficient water use by utilizing measures such as:

i. Requiring water-conserving design and equipment in new construction.
ii. Encouraging water-conserving landscaping and irrigation methods.
iii. Encouraging the retrofitting of existing development with water-conserving devices.

1.10.7. Light and Glare

Policies

Policy 47. Ensure that light and glare from discretionary new development projects are minimized in rural as well as urban areas.

Policy 48. Encourage the use of low-glare lighting to minimize nighttime glare effects on neighboring properties.

Implementation Measures

Implementation Measure AA. The County shall utilize CEQA Guidelines and the provisions of the Zoning Ordinance to minimize the impacts of light and glare on adjacent properties and in rural undeveloped areas.

Chapter 2. Circulation Element

2.1 Introduction

Goals

Goal 4: Kern County will plan for a reduction of environmental effects without accepting a lower quality of life in the process.

Goal 5: Maintain a minimum Level of Service (LOS) D for all roads throughout the County unless the roads are part of an adopted Community Plan or Specific Plan which utilizes Smart Growth policies that encourage efficient multi-modal movements (See Section 1.10.8).

2.3.3 Highway Plan

Goal 5. Maintain a minimum LOS D.

Policy 1. Development of roads within the County shall be in accordance with the Circulation Diagram Map. The charted roads are usually on section and mid-section lines. This is because the road centerline can be determined by an existing survey.

Policy 3. This plan's road-width standards are listed below. These standards do not include state highway widths that would require additional right-of-way for rail transit, bike lanes, and other modes of transportation. Kern County shall consider these modifications on a case by-case basis.

• Expressway [Four Travel Lanes] Minimum 110-foot right-of-way;

• Arterial [Major Highway] Minimum 110-foot right-of-way;

• Collector [Secondary Highway] Minimum 90-foot right-of-way;

• Commercial-Industrial Street Minimum 60-foot right-of-way; and

• Local Street [Select Local Road] Minimum 60-foot right-of-way

Implementation Measure A. The Planning Department shall carry out the road network Policies by using the Kern County Land Division Ordinance and Zoning Ordinance, which implements the Kern County Development Standards that includes road standards related to urban and rural planning requirements. These ordinances also regulate access points. Planning Department [*sic*] can help developers and property owners in identifying where planned circulation is to occur.

Implementation Measure C. Conformance to alignment minimum design standards, where roadways that deviate from section and mid-section lines intersect those lines, must be reviewed and approved in conjunction with project adoption on an individual basis.

2.3.4. Future Growth

Goal 1. To provide ample flexibility in this plan to allow for growth beyond the 20-year planning horizon.

Policies

Policy 2. The County should monitor development applications as they relate to traffic estimates developed for this plan. Mitigation is required if development causes affected roadways to fall below Level Of [sic] Service (LOS) D. However, development proposed as part of a Community Plan or Specific Plan which utilizes Smart Growth Policies that encourage efficient multi-modal movements (See Section 1.10.8) is allowed the flexibility to assess traffic and safety impacts through other means than Level Of Service (LOS). U Utilization of the CEQA process would help identify alternatives to or mitigation for such developments. Mitigation could involve amending the Land Use, Open Space and Conservation Element to establish jobs/housing balance if projected trips in any traffic zone exceed trips identified for this Circulation Element. Mitigation could involve exactions to build off-site transportation facilities. These enhancements would reduce traffic congestion to an acceptable level.

Policy 4. As a condition of private development approval, developers shall build roads needed to access the existing road network. Developers shall build these roads to County standards unless improvements along state routes are necessary then roads shall be built to Caltrans standards. Developers shall locate these roads (width to be determined by the Circulation Plan) along centerlines shown on the Circulation Diagram Map unless otherwise authorized by an approved Specific Plan Line. Developers may build local roads along lines other than those on the Circulation Diagram Map. Developers would negotiate necessary easements to allow this.

Policy 6. The County may accept a developer's road into the county's maintained road system. This is at Kern County's discretion. Acceptance would occur after the developer follows the above requirements. Roads are included in the County road maintenance system through approval by the Board of Supervisors

Implementation Measures

Implementation Measure C. Project development shall comply with the requirements of the KCZO, Land Division Ordinance, and Development Standards.

2.3.6 Vacation of Existing or Recorded Future Streets, Highways, or Public Easements

Policies

Policy 3. If the road vacation applicant is a private entity, all costs for the public hearing shall be borne by the applicant. Also, costs associated with providing any necessary additional public road services or other traffic management caused by the road vacation shall be paid by the applicant.

2.3.10 Congestion Management Programs

State law requires that urbanized counties (including Kern County) prepare an annual congestion management program (CMP). City and county eligibility for new gas tax subventions is contingent upon their participation in the CMP. To qualify for funding provided through the State Transportation Improvement Program or the Federal Transportation Improvement Program, the regional transportation agency must keep current a RTP that contains the CMP. Also, the CMP offers local jurisdictions the opportunity to find cooperative solutions to the multi-jurisdictional problems of air pollution and traffic congestion.

The CMP has links with air quality requirements. The California Clean Air Act requires that cities and counties implement transportation control measures to attain, and maintain, the State air quality standard.

Goals

Goal 1. To satisfy the trip reduction and travel demand requirements of the Kern Council of Government's CMP.

Goal 2. To coordinate congestion management and air quality requirements and avoid multiple and conflicting requirements.

Policies

Policy 1. Pursuant to California Government Code 65089(a), Kern County has designated Kern Council of Governments as the County's Congestion Management Agency (CMA).

Policy 2. The CMA is responsible for developing, adopting, and annually updating a Congestion Management Plan. The Plan is to be developed in consultation with, and with the cooperation of,

the regional transportation agency (also Kern Council of Governments), regional transportation providers, local governments, Caltrans, and the air pollution control district

Implementation Measures

Implementation Measure A. Kern County Council of Governments should request the proper consultation from County of Kern to develop and update the proper CMP.

Implementation Measure B. The elements within the Kern CMP are to be implemented by each incorporated city and the County of Kern. Specifically, the land use analysis program, including the preparation and adoption of deficiency plans is required. Additionally, the adoption of trip reduction and travel demand strategies are required in the CMP.

2.5.1 Trucks and Highways

The Kern County road network handles a high ratio of heavy truck traffic. State highways carry most of this traffic. Most of the trucks are interstate carriers. As such, interstate trucking is not under the direct control of County officials. In as much as this traffic affects County residents and taxpayers, they need actions to guarantee State highways in Kern County receive a fair share of California's transportation investment.

Goals

Goal 1: Provide for Kern County's heavy truck transportation in the safest way possible.

Goal 2. Reduce potential overweight trucks.

Goal 3. Use State Highway System improvements to prevent truck traffic in neighborhoods.

Policies

Policy 1. Caltrans should be made aware of the heavy truck activity on Kern County's roads.

2.5.4. Transportation of Hazardous Materials

Goals

Goal 1. Reduce risk to public health from transportation of hazardous materials.

Policies

Policy 1. The commercial transportation of hazardous material, identification and designation of appropriate shipping routes will be in conformance with the adopted Kern County and Incorporated Cities Hazardous Waste Management Plan.

Policy 2. Kern County and affected cities should reduce use of County-maintained roads and city-maintained streets for transportation of hazardous materials.

Implementation Measures

Implementation Measure A. Roads and highways utilized for commercial shipping of hazardous waste destined for disposal will be designated as such pursuant to Vehicle Code Sections 31303 et seq. Permit applications shall identify commercial shipping routes they propose to utilize for particular waste streams.

Chapter 3. Noise Element

Goals

Goal 1. Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.

Goal 2. Protect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.

Policies

Policy 1. Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.

Policy 2. Require noise level criteria applied to all categories of land uses to be consistent with the recommendations of the California Division of Occupational Safety and Health (DOSH).

Policy 3. Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise.

Policy 4. Utilize good land use planning principles to reduce conflicts related to noise emissions.

Policy 7. Employ the best available methods of noise control.

Implementation Measures

Implementation Measure A. Utilize zoning regulations to assist in achieving noise-compatible land use patterns.

Implementation Measure C. Review discretionary development plans, programs and proposals, including those initiated by both the public and private sectors, to ascertain and ensure their conformance to the policies outlined in this element.

Implementation Measure F. Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise-sensitive land uses to exterior noise levels in excess of 65 dB L_{dn} and interior noise levels in excess of 45 dB L_{dn}.

Implementation Measure G. At the time of any discretionary approval, such as a request for a General Plan Amendment, zone change or subdivision, the developer may be required to submit an

acoustical report indicating the means by which the developer proposes to comply with the noise standards. The acoustical report shall:

a) Be the responsibility of the applicant.

b) Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics.

c) Be subject to the review and approval of the Kern County Planning Department and the Environmental Health Services Department. All recommendations therein shall be complied with prior to final approval of the project.

Implementation Measure I. Noise analyses shall include recommended mitigation, if required, and shall:

a) Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.

b) Include estimated noise levels, in terms of Community Noise Equivalent Level (CNEL), for existing and projected future (10–20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element.

c) Include recommendations for appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element.

d) Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.

Implementation Measure J. Develop implementation procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are conducted as part of the project permitting process.

Chapter 4. Safety Element

Goals

Goal 1. Minimize injuries and loss of life and reduce property damage.

Goal 5. Ensure the availability and effective response of emergency services following a catastrophic event.

Goal 7. Ensure that adequate emergency services and facilities are available to the residents of Kern County through the coordination of planning and development of emergency facilities and services.

4.2. General Policies and Implementation Measures, which Apply to More than One

Safety Constraint

Policies

Policy 1. That the County's program of identification, mapping, and evaluating the geologic, fire, flood safety hazard areas, and significant concentrations of hydrogen sulfide in oilfield areas, presently under way by various County departments, be continued.

Policy 2. Those hazardous areas, identified as unsuitable for human occupancy, are guided toward open space uses, such as agriculture, wildlife habitat, and limited recreation.

Implementation Measures

Implementation Measure A. All hazards (geologic, fire, and flood) should be considered whenever a Planning Commission or Board of Supervisor's action could involve the establishment of a land use activity susceptible to such hazards.

Implementation Measure F. The adopted multi-jurisdictional Kern County, California Multi-Hazard Mitigation Plan, as approved by FEMA, shall be used as a source document for preparation of environmental documents pursuant to CEQA, evaluation of project proposals, formulation of potential mitigation, and identification of specific actions that could, if implemented, mitigate impacts from future disasters and other threats to public safety.

4.3. Seismically Induced Surface Rupture, Ground Shaking, and Ground Failure

Policy 1. The County shall require development for human occupancy to be placed in a location away from an active earthquake fault in order to minimize safety concerns.

Implementation Measures

Implementation Measure B. Require geological and soils engineering investigations in identified significant geologic hazard areas in accordance with the Kern County Code of Building Regulations.

Implementation Measure C. The fault zones designated in the Kern County Seismic Hazard Atlas should be considered significant geologic hazard areas. Proper precautions should be instituted to reduce seismic hazard, whenever possible in accordance with state and County regulations.

4.5. Landslide, Subsidence, Seiche, and Liquefaction

Policies

Policy 1. Determine the liquefaction potential at sites in areas of shallow groundwater (Map Code 2.3) prior to discretionary development and determine specific mitigation to be incorporated into the foundation design, as necessary, to prevent or reduce damage from liquefaction in an earthquake.

Policy 3. Reduce potential for exposure of residential, commercial, and industrial development to hazards of landslide, land subsidence, liquefaction, and erosion.

4.6. Wildland and Urban Fire

Policies

Policy 1. Require discretionary projects to assess impacts on emergency services and facilities.

Policy 3. The County will encourage the promotion of fire prevention methods to reduce service protection costs and costs to taxpayers.

Policy 4. Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.

Policy 6. All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.

Implementation Measures

Implementation Measure A. Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.

4.9. Hazardous Materials

Policies

Policy 1. Monitor, enforce, and update, as appropriate, all emergency plans as needs and as conditions change.

Implementation Measures

Implementation Measure A. Facilities used to manufacture, store, and use of [*sic*] hazardous materials shall comply with the Uniform Fire Code, with requirements for siting or design to prevent on-site hazards from affecting surrounding communities in the event of inundation.

4.10. Abandoned Open Shafts and Wells

Policies

Policy 1. The County should protect residents from the hazards of improperly abandoned mine shafts.

Policy 2. The County should protect residents from the hazards associated with development in areas where wells have been drilled and abandoned for exploration and/or production of oil and natural gas.

Implementation Measures

Implementation Measure A. Work with State and federal governments to assure that existing mine shafts are properly abandoned and designated.

Implementation Measure B. Support the construction site review program of the Department of Oil, Gas, and Geothermal Resources that assures wells are precisely located, properly plugged and abandoned, and tested for leakage prior to development of the area.

Chapter 5. Energy Element

5.2 Importance of Energy to Kern County

Policy 8. The County should work closely with local, state, and federal agencies to assure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts to fish, wildlife, and botanical resources, wherever practical.

Policy 10. The County should require acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise Element of the General Plan.

5.3.1 Urban/Residential Development in Petroleum Resource Areas

Goal 1. To protect oil resource areas from unnecessary urban/suburban encroachment, and in instances of urban/suburban development in oil resource areas, to provide for the development of petroleum resources in a manner compatible with the surrounding environment to minimize adverse impacts and protect health and safety.

Policies

Policy 1. The County shall continue to assure adequate minimum setbacks between wells and from any existing structure, as permitted by the KCZO.

Implementation Measure C. The County shall monitor its regulations pertaining to petroleum exploration, production, and update such regulations as necessary.

5.3.2. Kern County's Economic Dependence on the Oil Marketplace

Policies

Policy 3. The County shall encourage the conversion of existing petroleum-related facilities to other productive uses when they are no longer needed or productive.

Policy 4. The County should encourage the development of renewable energy industries to diversify the energy economy in Kern County.

5.4 Electricity Resources and Generation

5.4.5 Solar Energy Development

Goals

Goal 1. Encourage safe and orderly commercial solar development.

Policies

Policy 1. The County shall encourage domestic and commercial solar energy uses to conserve fossil fuel and improve air quality.

Policy 3. The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

Policy 4. The County should encourage solar development in the desert and valley regions previously disturbed, and discourage development of energy projects on undisturbed land supporting State or federally protected plant and wildlife species.

5.4.7 Transmission Lines

Goals

Goal 1. To encourage the safe and orderly development of transmission lines to access Kern County's electrical resources along routes, which minimize potential adverse environmental effects.

Policies

Policy 5. The County should discourage the siting of above-ground transmission lines in visually sensitive areas.

Buttonwillow Community Development Specific Plan

Site 1 of the proposed Project is partially located within the area that is subject to the Buttonwillow Community Development Plan and, therefore, is subject to applicable policies and measures of the Buttonwillow Community Development Specific Plan. The Land Use Element includes recommendations and implementation measures related to agricultural land use within the plan area. Per the Specific Plan, implementation for agricultural lands include: "Encourage continuance of land use contracts under the provisions of the California land Conservation Act of 1965, as amended, and commonly referred to as 'the Williamson Act.'"

Land Use Element

Open Space

Recommendations

All transmission line easements shall be maintained as open space areas.

Implementation Measures

Encourage continuing dual use of transmission line easements as open space or possibly greenbelt areas.

Continuance of land use contracts under the provisions of the Williamson Act and maintenance of the A (Exclusive Agricultural) zoning classification for agricultural lands.

Agriculture

Recommendations

All lands with intensive agricultural capabilities or lands being used for agricultural purposes should be precisely zoned with an agricultural designation.

Implementation Measures

Encourage continuance of land use contracts under the provisions of the California Land Conservation Act of 1965, as amended, and commonly referred to as "The Williamson Act."

Conservation Element

Recommendations

Possible water contamination shall be avoided by requiring suitable size lots, depending on soils, for development not providing sewage treatment facilities.

Implementation Measures

Encourage development of an overall water use plan for Kern County, in conjunction with the Kern County Water Agency, and all water districts and city agencies, toe stablish maximum benefits from the limited water resources.

6. Fish and Wildlife

Recommendations

Blunt-nosed Leopard Lizard: The extent and status of existing populations should be determined.

Implementation Measures

Encourage programs to locate and determine populations of rare and endangered species.

Encourage establishment of wildlife refuges and habitats for rare and endangered species.

Open Space Element

E. Air Pollution Hazard

Recommendations

It is the recommendation of the Air Quality Control Section that the proposed development(s) proceed with only minimal disruption of the native soil surface within the project area. Removal of native grasses and/or disruption of native soils will tend to increase the discharge of fugitive dust into the atmosphere.

It is also recommended that sufficient dust control measures be provided during any construction activity in order to control fugitive dust.

It is further recommended that all roads within the project area be paved.

Implementation Measures

Encourage reseeding of disturbed soils.

Encourage use of pesticides and herbicides only on days when wind conditions are such that contamination will not affect the community.

Kern County Zoning Ordinance

The KCZO is provided in Title 19 of the Kern County Code of Ordinances and provides a description of permitted uses for the various zoning classifications within the County. The intent of the KCZO is to protect public health, safety, and the general welfare of residents and visitors in the county. The KCZO Zoning Map identifies the zoning designation(s) on each parcel of land in the unincorporated county and the KCZO sets forth corresponding regulations and standards for each zone to ensure that development complies with the policies, goals, and objectives of the KCGP. In addition to land use regulations, the KCZO contains development standards that can lessen a new structure's impacts on a location or area. These standards control the height, setbacks, parking area sizes, gross floor area, etc., for new structures. The KCZO also regulates permitted uses in each of the County's zoning districts to ensure compatibility between land uses.

4.11.4 Impacts and Mitigation Measures

Methodology

The potential impacts associated with the proposed Project were qualitatively evaluated by assessing the proposed Project's consistency with the environmental planning goals identified above. Compliance with the aforementioned policies is illustrated in consistency tables provided in the *Project Impacts* section below. The change in land use of the proposed Project site is significant if either one or both of the effects described under the thresholds of significance below occurs as a result of the proposed Project. The evaluation of proposed Project impacts is based on professional judgement, analysis of the County's land use policies, and the significance criteria established in CEQA Guidelines Appendix G, which the County has determined appropriate for this Draft EIR.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines, the Kern County CEQA Implementation Document and Kern County Environmental Checklist state that a project could potentially have a significant adverse effect on land use if the proposed Project would:

a. Physically divide an established community; and/or

b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Impacts and Mitigation Measures

Impact 4.11-1: Would the Project physically divide an established community?

While there are several single-family dwellings within the proposed Project site, the proposed Project would not divide an established community. As described above, the proposed Project site is located in an Exclusive Agricultural zoning district that is mostly dedicated to agricultural uses and where a maximum of one single-family dwelling is allowed per legal lot. Approximately 10,689 acres (89 percent) of the proposed Project site are subject to Williamson Act contracts, which require a minimum 80-acre lot for enrollment. As a result, an established community does not exist within the proposed Project site. The nearest community is the community of Buttonwillow, generally located south and west of Site 1. Although the Specific Plan area encompasses a portion of Site 1, the proposed development would not be located within, and does not have the potential to physically divide, the existing developed community that is located west/southwest of the proposed development.

Midway Substation Upgrades

The proposed Project includes enlarging the Midway Substation's 500 kilovolt (kV) yard within the PG&E owned Midway Substation property boundaries. The PG&E Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities as part of the proposed Project. To support the proposed Buttonbush Solar and Storage Project's communication infrastructure, PG&E may install two 4-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest. This fiber-optic line is critical for the safe and efficient operation of the proposed Project. The fiber-optic line route will be trenched underground from the Midway Substation to the Point of Change of Ownership.

PG&E proposes to remove the existing precast security wall at the northwest side of the Midway Substation and replace it with a new 12-foot wall, similar in appearance and material, approximately 510 feet north and 140 feet west of the existing walls of the 500 kV yard within Midway Substation. Grading of the connection area may be required and prior to any ground-disturbing activities. PG&E would acquire all necessary permits. Within the proposed graded area of the Midway Substation, PG&E would install approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker. This would include installing equipment foundations and concrete trenches, equipment cabinets, bus structures, communication lines, conduits, pull boxes, and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, PG&E would install up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from Midway Substation to the Point of Change of Ownership for the proposed project. Up to four approximately 175-foot-tall lattice steel towers

or tubular steel poles would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads.

Similar to other portions of the proposed Project site, the Midway Substation is located one mile north of the closest established community. The existing facility does not divide a community and the improvements, aside from associated transmission lines and towers, would be contained within the existing Midway Substation property boundaries. Therefore, the proposed project upgrades of the Midway Substation would not divide an established community.

Summary

The proposed Project would not divide an existing community.

Mitigation Measures

Not applicable—no impacts would occur.

Level of Significance

No impacts would occur.

Impact 4.11-2: Would the Project conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Regional Plans, Policies, and Regulations

Although Kern COG does not have jurisdiction over land use planning, the 2022 RTP/SCS sets forth general policies/actions which apply to transportation developments that are linked to land use decisions and are intended to achieve the specific goals listed above. While all the goals are interrelated and important, the 2022 RTP/SCS identifies mobility as the RTP/SCS's highest goal. The proposed Project involves changes (for example, the elimination of road reservations identified in the KCGP Circulation Element, and the construction of access driveways connecting to public roads) and increases in traffic to the Kern County roadway network, which could affect Kern COG's ability to achieve the goals set forth in the 2022 RTP/SCS.

Section 4.15, *Transportation*, of this Draft EIR provides an analysis of the proposed Project's consistency with the applicable, environmental-related policies/actions of the 2022 RTP/SCS. As stated in Section 4.15, *Transportation*, with the implementation of the recommended air quality-related mitigation measures identified in this Draft EIR, the proposed Project will not interfere with the implementation of applicable, environmentally related policies/actions set forth in the 2022 RTP/SCS. Therefore, the proposed Project will not result in a significant environmental impact due to an inconsistency with the 2022 RTP/SCS.

Local Plans, Policies, and Regulations

The proposed Project is subject to the KCGP, the Buttonwillow Specific Plan, and the KCZO which guide long-term development for the protection and public interest of the county's growth and development. The following discussion evaluates the proposed Project's consistency with the applicable environmentally related plans, policies, and regulations of the KCGP and the KCZO. As stated above, implementation of the proposed Project would require approval of multiple CUPs, KCGP and Specific Plan amendments (Circulation Elements), WALUCC, Farmland Security Zone Contract Cancellation, and Non-Summary Vacations of Public Access Easements.

Kern County General Plan and Buttonwillow Community Development Specific Plan

The KCGP designates the proposed Project site as 4.1 – Special Treatment Areas (Accepted County Plan Areas), 8.1 – Intensive Agriculture, 8.1/2.3 – Intensive Agriculture/Shallow Groundwater, 8.3 – Extensive Agriculture, 8.4 – Mineral and Petroleum, and 8.5 – Resource Management (**Figure 3-5 A-E:** *Existing General Plan Land Use Designations*). These land use designations are further described in Chapter 3, *Project Description*, Section 3.4.2, *Land Use and Zoning,* of this Draft EIR. The proposed Project does not include a change to the existing land use designations of the proposed Project site.

Table 4.11-3: *Project Consistency with Local Planning Documents*, presents an evaluation of the proposed Project's consistency with the KCGP and Specific Plan. The table lists applicable environmentally related goals and policies and provides an analysis of the proposed Project's consistency with them. In addition to the analysis, some goals and policies of certain environmental topics are addressed in other sections of this Draft EIR (for example, noise).

As described in detail in **Table 4.11-3:** *Project Consistency with Local Planning Documents*, the proposed Project is consistent with the goals and policies of the KCGP and Buttonwillow Specific Plan.

Removal of Future Road Reservations and Street Vacations

The proposed Project would include vacation of public access easements within the proposed solar facility. The proposed Project also proposes the removal of future road reservations at section and mid-section lines by amendment of the Circulation Element. Implementation of the Circulation Element of the KCGP goals, policies, and implementation measures would ensure consistency between the proposed project and land use plan for the proposed project area. The proposed amendment would be consistent with the surrounding land uses in the proposed project vicinity. Therefore, the proposed project's proposed amendment to the Circulation Element of the KCGP and the vacation of public access easements would not result in conflict with the applicable land use plan, and impacts would be less than significant. Section 4.15, *Traffic and Transportation*, provides further discussion of impacts related to traffic and transportation resulting from the proposed Circulation Element amendments.

Williamson Act Land Use and Farmland Security Zone Contracts

As shown in Chapter 3, *Project Description*, **Figure 3-8:** *Williamson Act - Active and Nonrenewals*, the proposed Project sites are within an area that has historically been used for agricultural crop production and many parcels within the proposed Project site are subject to active Williamson Act Land Use and Farmland Security Zone contracts. The proposed Project would result in the cancellation of contracts for approximately 10,688 acres; petitions were filed as part of the proposed Project for notice of nonrenewal and cancellation of each contract. As provided in full detail in Section 4.1, *Agriculture and Forest Resources,* of this Draft EIR, the proposed Williamson Act and FSZ contract cancellations would be consistent with all required findings for cancellation.

Kern County Zoning Ordinance

As described in Section 4.11.2, *Environmental Setting*, of this Draft EIR, the proposed Project is subject to the regulations of the KCZO and is included within Kern County Agricultural Preserve Numbers 6, 8, and 9 boundaries, as is the standard practice in Kern County for any land that is zoned A (Exclusive Agriculture). The entire proposed Project is within the A (Exclusive Agriculture) zone district. Pursuant to Section 19.12.030 of KCZO, solar facilities are permitted on lands zoned as A (Exclusive Agriculture) subject to a CUP and, therefore, the proposed Project does not include an application for a zone change. The Sites listed below would require approval of CUPs for the construction and operation of the 2 gigawatt (GW) solar facility and 2 GW battery energy storage system.

- **Site 1** (up to 441 MW of generating capacity and 4,000 MWh of energy storage)
  - CUP No. 17 Map 98 on approximately 1,300 acres
  - CUP No. 19 Map 98 on approximately 77 acres
  - CUP No. 25 Map 99 on approximately 989 acres
- **Site 2** (up to 93 MW generating capacity and 1,600 MWh of energy storage)
  - CUP No. 14 Map 77 on approximately 412 acres
  - CUP No. 20 Map 77 on approximately 80 acres
  - CUP No. 18 Map 98 on approximately 132 acres
- **Site 3** (up to 108 MW generating capacity)
  - CUP No. 15 Map 77 on approximately 644 acres
- **Site 4** (up to 38 MW generating capacity)
  - CUP No. 16 Map 77 on 395 acres
- **Site 5** (up to 404 MW generating capacity and 4,800 MWh of energy storage)
  - CUP No. 26 Map 99 on 2,302 acres
  - CUP No. 27 Map 99 on 153 acres
  - CUP No. 28 Map 99 on 318 acres

  - CUP No. 61 Map 100 on 375 acres
- **Site 6** (up to 453 MW generating capacity, and approximately 4,800 MWh of energy storage)
  - CUP No. 17 Map 78 on 2,409 acres
- **Site 8** (up to 463 MW generating capacity and 800 MWh of energy storage)
  - CUP No. 12 Map 54 on 589 acres
  - CUP No. 17 Map 77 on 2,436 acres
  - CUP No. 18 Map 77 on 235 acres
  - CUP No. 19 Map 77 on 543 acres

With approval of the CUPs, the proposed Project would be an allowable use within the A Zone District. At the end of the proposed Project's operational term, the proposed Project proponent would determine whether the proposed Project site should be decommissioned and deconstructed or to continue operation of the proposed facilities by applying for, and obtaining Kern County's approval of, an extension of the CUPs. If any portion of the proposed Project site is decommissioned, it would be converted to permissible uses in accordance with the applicable land use regulations in effect at that time. As such, with approval of the CUPs, and cancellation of WALUC, the proposed Project would be consistent with applicable land use policies and regulations, and impacts related to consistency with the KCZO would be less than significant.

Midway Substation Upgrades

As discussed in Impact 4.11-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the PG&E owned Midway Substation property boundaries. In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the point-of-interconnection for the proposed Project. PG&E would comply with all applicable laws during construction and operation of its facilities.

Summary

The proposed Project is consistent with applicable local policies and plans, with the mitigation described in the policy consistency analysis above.

Mitigation Measures

No mitigation measures are required besides those discussed in the policy consistency analysis above and presented elsewhere in this Draft EIR.

Level of Significance after Mitigation

Less than significant.

4.11.5 Cumulative Setting, Impacts, and Mitigation Measures

As stated in Chapter 3, *Project Description*, of this Draft EIR, the cumulative analysis evaluated the combined impacts of projects located within a six-mile radius of the proposed Project site due to their proximity to the proposed Project site and potential to collectively contribute to impacts involving regional land use patterns. As provided in the Cumulative Projects List, the six-mile radius captures 25 projects (besides the proposed Project), four of which are solar projects.

As described above, the proposed Project does not have the potential to physically divide an established community (Impact 4.10-1). Although Site 1 is partially located within the area that is subject to the Buttonwillow Community Development Specific Plan, the proposed Project involves the conversion of a portion of the agricultural lands within the periphery, but not the downtown core (for example, residentially developed areas), of Buttonwillow. Further, the Winston Solar and Cal Centre Warehouse Development projects also are located within proximity to Buttonwillow; however, these projects are located northeast of—that is further away from Buttonwillow as compared to—Site 1. (See **Figure 3-12:** *Cumulative Projects Map*, in Chapter 3, *Project Description*, of this Draft EIR.) Therefore, the proposed Project when combined with other projects included in the analysis of cumulative impacts, does not have the potential to physically divide the Buttonwillow community.

Additionally, each project included in the analysis of cumulative impacts would be required to demonstrate consistency with all applicable planning documents governing the project site, including the KCGP and the KCZO. Should potential impacts be identified, appropriate mitigation would be prescribed that would likely reduce potential impacts to a less than significant level. Therefore, the proposed Project would not make a cumulatively considerable contribution to a significant cumulative impact resulting from an inconsistency with an environmentally related policy of the KCGP.

With regard to cumulative effects of utility-sized solar power generation facilities, there is a potential that outside factors, such as the development of newer 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. 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 project not be in operation. The potential for the cumulative effects caused by the abandonment of multiple solar facilities in Kern County could result in impacts on surrounding land uses should it be determined that these facilities are no longer viable commercial operations. Therefore, Mitigation Measure MM 4.11-1, which would require the implementation of a decommissioning plan to be carried out by the proposed Project proponent once the life of the proposed project has ended, has been included to establish safeguards to ensure the maintenance of the health, safety, and welfare of the citizens of the County. While it is the intent of Kern County to promote the use of an alternative to fossil-fuel-generated electrical power in areas of the County that are identified to have suitable characteristics for production of commercial quantities of solar PV-generated electrical power, it is necessary to protect surrounding landowners from potential impacts associated with the abandonment of such facilities. With the implementation

of Mitigation Measure MM 4.11-1, cumulative land use impacts would be considered less than significant.

Midway Substation Upgrades

As described above in Impacts 4.11-1 and 4.11-2, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the PG&E owned Midway Substation property boundaries, which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. The Midway Substation would not contribute to the dividing of communities, and would not contribute to any conflict with applicable land use plans that would avoid or mitigate environmental effects. The Midway Substation upgrades would not be cumulatively considerable or significant.

Summary

With the implementation of Mitigation Measure MM 4.11-1, the proposed Project will not make a cumulatively considerable contribution to a significant cumulative impact related to land use and planning that concern environmental effects.

Mitigation Measures

MM 4.11-1: Prior to issuance of any building permit, the project operator shall provide a Decommission Plan for review and approval by the Kern County Public Works Department or a County-contracted consulting firm at a cost to be borne by the project operator. The Decommission Plan shall factor in the cost to remove the solar panels and support structures, replacement of any disturbed soil from removal of support structures, and control of fugitive dust on the remaining undeveloped land. Salvage value for the solar panels and support structures shall be included in the financial assurance calculations. The assumption, when preparing the estimate, is that the project operator is incapable of performing the work or has abandoned the solar facility, thereby requiring Kern County to hire an independent contractor to perform the decommissioning work. In addition to submitting a Decommission Plan, the project operator shall post or establish and maintain financial assurances with Kern County related to the decommissioning of the site as identified on the approved Decommission Plan in the event that at any point in time the project operator determines it is not in the company's best interest to operate the facility.

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

a. An irrevocable letter of credit;

b. A surety bond;

c. A trust fund in accordance with the approved financial assurances to guarantee the decommissioning work will be completed in accordance with the approved decommission plan; or

d. Other financial assurances as reviewed and approved by the respective County administrative offices, in consultation with the Kern County Planning and Natural Resources Department.

The financial institution or Surety Company shall give the County at least 180 days' notice of intent to terminate the letter of credit or bond. Financial assurances shall be reviewed annually by the Kern County Public Works Department or County-contracted consulting firm(s) at a cost to be borne by the project operator to substantiate those adequate funds exist to ensure decommissioning of all solar panels and support structures identified on the approved Decommission Plan. Should the project operator decommission the site on their own, the County will not pursue forfeiture of the financial assurance.

Once decommissioning has occurred, financial assurance for that portion of the site will no longer be required and any financial assurance posted shall be adjusted or returned accordingly. Any funds not utilized through decommissioning of the site by the County shall be returned to the project operator.

Should any portion of the solar field not be in operational condition for a consecutive period of twelve (12) months that portion of the site shall be deemed abandoned and shall be removed within sixty (60) days from the date a written notice is sent to the property owner and solar field owner, as well as the project operator, by the County. Within this sixty (60) day period, the property owner, solar field owner, or project operator may provide the director of the Kern County Planning and Natural Resources Department a written request and justification for an extension for an additional twelve (12) months. The Kern County Planning and Natural Resources Director shall consider any such request at a Director's Hearing as provided for in Section 19.102.070 of the Kern County Zoning Ordinance. In no case shall a solar field that has been deemed abandoned be permitted to remain in place for more than forty-eight (48) months from the date the solar facility was first deemed abandoned.

Level of Significance after Mitigation

With implementation of Mitigation Measure MM 4.11-1, the proposed Project would not make a cumulatively considerable contribution to a significant cumulative impact related to land use and planning that concern environmental effects.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Kern County General Plan	
CHAPTER 1: *LAND USE, OPEN SPACE, AND CONSERVATION ELEMENT*	
1.3: *PHYSICAL AND ENVIRONMENTAL CONSTRAINTS*	
Goal 1. To strive to prevent loss of life, reduce personal injuries, and property damage, minimize economic and social diseconomies resulting from natural disaster by directing development to areas which are not hazardous.	**CONSISTENT.** Consistent with this policy, the Project site is not located on a hazardous site (Section 4.9, *Hazards and Hazardous Materials*, of this Draft EIR). As described in Section 4.7, *Geology and Soils*, of this Draft EIR, the Project site is not transected by a known active or potentially active fault and is not located within a State of California Alquist-Priolo Earthquake Fault Zone. Adherence to all applicable regulations and mitigation would reduce potential impacts associated with fault rupture adjacent to the Project site. Based on the absence of any known active faults that cross, or are located in close proximity to, the Project site and project compliance with applicable ordinances of the Kern County Building Code and Mitigation Measure MM 4.7-1, the potential impact of fault rupture would be less than significant. Additionally, the proposed Project would implement all other recommendations of the final design level geotechnical report. The final report's recommendations would be consistent with the Kern County Building Code (Chapter 17.08) and the most recent version of the California Building Code. As described in Section 4.10, *Hydrology and Water Quality*, of this Draft EIR, the Project site is not located within the 100-year floodplain and is classified as having less than 1 percent annual chance of flooding. Implementation of Mitigation Measure MM 4.10-2 would require preparation of a drainage plan that involves designing proposed Project facilities to have 1 foot of freeboard clearance above the calculated maximum flood depths for the finished floor of any permanent structures, and grading for the proposed Project would be designed so that water surface elevations during flood events would not be increased by more than 1 foot. Further, the proposed Project would be developed in accordance with the General Plan and Floodplain Management Ordinance. As such, with implementation of the mitigation measures in this Draft EIR, the proposed Project would be consistent with this goal.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Policy 1. Kern County will ensure that new developments will not be sited on land that is physically or environmentally constrained ((Map Code 2.1 (Seismic Hazard), Map Code 2.2 (Landslide), Map Code 2.3 (Shallow Groundwater), Map Code 2.5 (Flood Hazard), Map Codes from 2.6 – 2.9, Map Code 2.10 (Nearby Waste Facility), and Map Code 2.11 (Burn Dump Hazard)) to support such development unless appropriate studies establish that such development will not result in unmitigated significant impact.	**CONSISTENT.** See 1.3, Physical and Environmental Constraints, Goal 1, of the KCGP, above.
Policy 3. Zoning and other land use controls will be used to regulate and, in some instances, to prohibit development in hazardous areas.	**CONSISTENT.** Hazards and hazardous materials impacts are evaluated in Section 4.9, *Hazards and Hazardous Materials*, of this Draft EIR. Consistent with this policy, and provided that the Board of Supervisors makes the findings to approve the requested CUPs, the proposed Project would comply with the requirements of the KCZO (for example, regulations pertaining to allowable uses and development standards).
Policy 11. Protect and maintain watershed integrity within Kern County.	**CONSISTENT.** See 1.3, Physical and Environmental Constraints, Goal 1 and Policy 9 of the KCGP, above. As discussed in Section 4.10, *Hydrology and Water Quality*, of the Draft EIR, the Project proponent would implement BMPs during construction to avoid impacts to water quality. As described in Section 4.9, *Hazards and Hazardous Materials*, of this Draft EIR, the Project proponent would also implement Mitigation Measure MM 4.9-1, which would require the Project proponent to prepare a hazardous materials business plan to reduce mixing of pollutants with stormwater on-site, thereby maintaining the integrity of the watershed.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Implementation Measure D. Review and revise the County's current Grading Ordinance as needed to ensure that its standards minimize permitted topographic alteration and soil erosion while maintaining soil stability.	**CONSISTENT.** See 1.3, Physical and Environmental Constraints, Goal 1 and Policy 9 and Policy 11 of the KCGP, above. The Project proponent would implement Mitigation Measures MM 4.10-1 and MM 4.10-2, which require the preparation of a Storm Water Pollution Prevention Plan (SWPPP) pursuant to the requirements of Kern County's National Pollution Discharge Elimination System (NPDES) Program and that would include erosion control and sediment control BMPs designed to prevent disturbed soils from moving off-site. The Project proponent also would be required to prepare a hydrologic study that would include the designs for a drainage plan that would minimize the potential for changes in the existing drainage patterns to increase erosion and sedimentation. Finally, the Project proponent would be required to obtain a grading permit from the County prior to commencement of grading; compliance with Chapter 17.28 of the Kern County Grading Ordinance would ensure both structural and nonstructural BMPs are implemented.
Implementation Measure N. Applicants for new discretionary development should consult with the appropriate Resource Conservation District and the California RWQCB regarding soil disturbances issues.	**CONSISTENT.** See 1.3, Physical and Environmental Constraints, Policy 11 and Measure D of the KCGP, above. The proposed Project would implement BMPs in accordance with a SWPPP that would be required to comply with Kern County's NPDES. Through the County discretionary approvals process, the Project proponent would be required to submit and obtain approval of the SWPPP and meet RWQCB requirements. This would ensure compliance with the State Water Resources Control Board's Construction General Permit, as applicable.
1.4: *PUBLIC FACILITIES AND SERVICES*	
Goal 1. Kern County residents and businesses should receive adequate and cost-effective public services and facilities. The County will compare new urban development proposals and land use changes to the required public services and facilities needed for the project.	**CONSISTENT.** As discussed in Section 4.14, *Public Services*, of this Draft EIR, the Project proponent would implement Mitigation Measures MM 4.14-2 and MM 4.14-3 to pay either property taxes or a Cumulative Impact Charge (CIC), and Supplemental Cumulative Impact Charge (SCIS) to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the county would otherwise receive for services and facilities, assuring the provision of adequate public services and facilities.
Goal 5. Ensure that adequate supplies of quality (appropriate for intended use) water are available to residential, industrial, and agricultural users within Kern County.	**CONSISTENT**. As discussed in Section 4.17, *Utilities and Service Systems*, of this Draft EIR, a project-specific Water Supply Assessment was prepared for the proposed Project. Based on estimated project construction and operational water demands per the report, there is sufficient water available to meet the projected water demands of the proposed Project during normal, dry, and multiple dry years.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Goal 9. Serve the needs of industries and Kern County residents in a manner that does not degrade the water supply and the environment and protect the public health and safety by avoiding surface and subsurface nuisances resulting from the disposal of hazardous wastes, irrespective of the geographic origin of the waste.	**CONSISTENT.** Public health and safety regarding the appropriate handling of hazardous materials are discussed in Section 4.9, *Hazards and Hazardous Materials*, of this Draft EIR. Mitigation Measure MM 4.9-1 would ensure appropriate handling, transport, and refuse of any hazardous material by requiring implementation of a hazardous materials business plan, pursuant to Article 1 and 2 of the California Health and Safety Code. This plan must delineate hazardous material in storage areas, describe the proper handling and methods and procedures to avoid spills, disposal of materials, and notification procedures for spills, among other quality control requirements regarding hazardous materials. The proper handling, storage, disposal, and notification would ensure disposal would not enter surface or subsurface water supplies.
Policy 1. New discretionary development will be required to pay its proportional share of the local costs of infrastructure improvements required to service such development.	**CONSISTENT.** The proposed Project would not create substantial demand on, and thereby require the provision of new, public services and facilities. However, should improvements be required, the entitlements for the proposed Project would include conditions of approval for the payment of requisite fees. Additionally, as discussed in Section 4.14, *Public Services*, of this Draft EIR, the Project proponent would implement Mitigation Measures MM 4.14-2 and MM 4.14-3 to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the county would otherwise receive for services and facilities, assuring the provision of adequate public and facilities.
Policy 3. Individual projects will provide availability of public utility service as per approved guidelines of the serving utility.	**CONSISTENT.** Public utility impacts are evaluated in Section 4.17, *Utilities and Service Systems*, of this Draft EIR. As described therein, the proposed Project would have less than significant impacts on water, wastewater treatment or storm water drainage, electric power, natural gas, and telecommunications facilities.
Policy 6. The County will ensure adequate fire protection to all Kern County residents	**CONSISTENT.** See 1.4, Public Services and Facilities, Goal 1, above. Additionally, Mitigation Measure MM 4.14-1 would require a fire safety plan to ensure adequate fire prevention through fire precautions.
Policy 7. The County will ensure adequate police protection to all Kern County residents.	**CONSISTENT.** See 1.4, Public Services and Facilities, Goal 1, above.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Implementation Measure B. Determine local costs of county facility and infrastructure improvements and expansion which are necessitated by new development of any type and prepare a schedule of charges to be levied on the developer at the site of approval of the Final Map. This implementation can be effectuated by the formation of a county work group.	**CONSISTENT.** See 1.4, Public Services and Facilities, Goal 1, above.
Implementation Measure C. Project developers shall coordinate with the local utility service providers to supply adequate public utility services.	**CONSISTENT.** Project effects related to utilities are discussed in Section 4.17, *Utilities and Service Systems*, of this Draft EIR. The proposed Project would result in less than significant impacts to utilities. Furthermore, the proposed Project would include the development of a solar PV power generating facility designed to produce approximately 2 GW of solar power that would be delivered to the grid, reducing fossil fuel-based energy dependence.
Implementation Measure D. Involve utility providers in the land use and zoning review process.	**CONSISTENT.** See 1.4, Public Services and Facilities, Policy 3, above. In addition, as described in Chapter 2, *Introduction*, of this Draft EIR, CEQA requires Kern County, as the Lead Agency for the purpose of environmental review, to notify, solicit, and consider input from interested agencies, citizen groups, and individual members of the public, including utility providers. Kern County staff sent a copy of the Notice of Preparation (NOP) to ensure early planning for land use and zoning review by allowing the opportunity for utility providers to address any incompatible uses within adjacent lands or public-rights-of-way for early review. The County did not receive comments on the NOP from the notified utility providers.
Implementation Measure J. Ensure that the Superintendent of Schools and the respective school districts are informed of development proposals and are afforded the opportunity of evaluating their potential effect on the physical capacity of school facilities.	**CONSISTENT.** Kern County staff sent a copy of the NOP for this Draft EIR, to the Kern County Superintendent of Schools. Kern County did not receive any comments in response.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Implementation Measure L. Prior to the approval of development projects, the county shall determine the need for fire protection services. New development in the county shall not be approved unless adequate fire protection facilities and resources can be provided.	**CONSISTENT.** Impacts to fire protection services are evaluated in Section 4.14, *Public Services*, of this Draft EIR. Mitigation Measure MM 4.14-1 requires implementation of a fire safety plan during solar field construction and operation that would include notification procedures and emergency fire precautions to help reduce fire risks and the consequential need for fire protection services on-site. The Project proponent would implement Mitigation Measure MM 4.14-2, which requires payment of either property taxes or a Kern County CIC. Payment of the CIC would provide funding for the County budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the County would otherwise receive for services and facilities, thereby supporting the provision of adequate public services and facilities.
Implementation Measure N. Secure complete and accurate information on all hazardous wastes generated, handled, stored, treated, transported, and disposed of within or through Kern County.	**CONSISTENT.** See 1.4, Public Services and Facilities, Goal 9, above.
1.5: *SPECIAL TREATMENT AREAS*	
Goal 1. To recognize the validity of existing specific plan and rural community plan decisions and to identify areas for which similar detailed planning efforts should be undertaken in the future so as to best meet the needs and concerns of local residents.	**CONSISTENT.** The proposed Project is consistent with the Buttonwillow Community Development Plan Land Use Chapter and, prior to approving the proposed Project, the decision-making authority would be required to find that the proposed Project is consistent with the Specific Plan (as amended). In addition, the Board of Supervisors may adopt the proposed amendments to the Specific Plan if it deems it to be in the public interest (Government Code Section 65358(a)).
Policy 1. Rural communities are historically identifiable small-scale non-urban settlements located in outlying areas of the county which contain a mixture of residential and supportive commercial and other uses serving the community and the surrounding rural population. The County will ensure that the unique character of these communities is preserved and enhanced by recognizing the scale, density, size, and composition of development as summarized in Appendix B.	**CONSISTENT.** The proposed Project is situated in an area zoned for agricultural use and does not involve development within the residential and/or commercial areas of the Buttonwillow community and/or other rural communities. While the proposed Project may alter existing views (for example, introducing contrast in the landscape), the proposed Project would be subject to Mitigation Measures MM 4.1-1 through MM 4.1-4. Implementation of these mitigation measures would reduce anticipated visual quality impacts by minimizing the visibility of trash accumulation during construction, installing fencing and view-screening material, ensuring that all proposed Project facilities and buildings are visually compatible with the natural landscape through appropriate color selection, and incorporating native vegetation screening as part of an approved landscape planting plan.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Implementation Measure A. Where particular policies or standards are not addressed within a special treatment area, the provisions of the KCGP shall govern.	**CONSISTENT**. The proposed Project would adhere to all provisions of the KCGP. The proposed Project proponent would be required to obtain all discretionary permits for the construction and operation of a solar facility and storage system on Exclusive Agriculture zoned property. Prior to approving the discretionary permits, the decision-making authority would be required to find that the proposed Project is consistent with the KCGP.
1.9: *RESOURCE*	
Goal 1. To contain new development within an area large enough to meet generous protections of foreseeable need, but in locations that will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources or diminish the other amenities that exist in the County.	**CONSISTENT.** The proposed Project would result in the conversion of approximately 10,582 acres of Farmland of Statewide Importance located in Zone A (Exclusive Agriculture). However, the conversion of agricultural land would support state and local renewable energy goals, produce reliable electricity, and promote economic and energy resiliency. The proposed Project includes the closure and discontinuance of the Tjaarda Dairy, which has been operating since 1999 and includes: a 10,000-square-foot milking facility; several cattle corrals; a feed area; cattle waste management areas; and waste management areas that include four settling ponds and a holding lagoon (Dudek 2025). Despite the conversion of agricultural land and discontinuance of the Tjaarda Dairy, substantial agricultural land will remain within the county and would not directly lead to other projects that would result in the additional loss of land for grazing and/or cultivation. As described in Section 4.12, *Mineral Resources*, of this Draft EIR, there are several oil and gas wells located within the Project site. The proposed Project would include a 10-foot, no-build setback around existing oil and gas wells and provide drilling areas of suitable size and access for holders of rights to minerals with appropriate locations. Furthermore, pursuant to Mitigation Measure MM 4.12-1, the Project proponent would be required to provide documentation of waivers from mineral rights holders for any mineral tracts rendered inaccessible by the proposed Project. As described in Section 4.12, *Mineral Resources*, of this Draft EIR, there are no active mines within the Project site, and the proposed Project would not interfere with off-site mining operations.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Goal 2. Protect areas of important mineral, petroleum, and agricultural resource potential for future use.	**CONSISTENT.** As described in Section 4.12, *Mineral Resources*, of this Draft EIR, there are no active mines within the Project site, and the proposed Project would not interfere with off-site mining operations. With regard to oil and gas resources, the proposed Project would include a 10-foot, no-build setback around oil and gas wells and provides drilling areas of suitable size at appropriate locations to provide access for holders of rights to minerals within the Project site. Furthermore, pursuant to Mitigation Measure MM 4.12-1, the Project proponent would be required to provide documentation of waivers from mineral rights holders for any mineral tracts rendered inaccessible by the proposed Project. As described in Section 4.2, *Agricultural and Forest Resources*, of this Draft EIR, the proposed Project would result in the conversion of agricultural land. However, following the implementation of the proposed Project, substantial agricultural land will remain within the county and would not directly lead to other projects that would result in the additional loss of grazing or cultivation land. Furthermore, if the proposed Project is decommissioned, the properties could resume agricultural production, as the proposed Project does not include a land use or zone change and, therefore, would not result in a permanent conversion of agricultural lands.
Goal 3. Ensure the development of resource areas minimize effects on neighboring resource lands.	**CONSISTENT.** The proposed Project is compatible with open space and other resource management land uses. The proposed Project is a low-intensity use and would not preclude or otherwise interfere with existing nearby agricultural, mineral, and petroleum extraction uses. Furthermore, the proposed Project would be subject to conditions of approval and mitigation measures to avoid creating significant adverse impacts on surrounding uses (for example, dust control during grading to avoid impacts to surrounding agricultural activities).
Goal 4. Encourage safe and orderly energy development within the county, including research and demonstration projects, and to become actively involved in the decision and actions of other agencies as they affect energy development in Kern County.	**CONSISTENT.** The proposed Project involves development of a photovoltaic solar facility, storage system, and associated facilities for the generation of up to 2 gigawatts of renewable electrical energy. The NOP of this Draft EIR was sent to state and federal agencies requesting their participation in early interagency collaboration and input on potential environmental, safety, and regulatory concerns regarding the proposed Project.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Goal 5. Conserve Prime agriculture lands from premature conversion.	**CONSISTENT.** As discussed in Section 4.2, *Agricultural and Forest Resources*, of this Draft EIR, the proposed Project would involve the conversion of approximately 10,582 acres of Important Farmland to non-agricultural uses. However, the proposed solar energy facility would preserve the underlying agricultural lands from urban development. If the proposed Project is decommissioned, agricultural production could resume on the Project site.
Goal 6. Encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.	**CONSISTENT.** Development of the photovoltaic solar facility, storage system, and associated facilities would enable a total combined generation of up to 2 gigawatts (GW) (2,000 megawatts) of renewable electrical energy with a combined 2 GW Battery Energy Storage System capable of storing approximately 16,000 megawatt-hours of energy for the Kern region. Environmental impacts identified in this Draft EIR have been avoided, mitigated, and compensated to the extent feasible. A list of mitigation measures can be found in Chapter 3.0, *Project Description*.
Policy 7. Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible residential, commercial, and industrial subdivision and development activities.	**CONSISTENT.** Development of the photovoltaic solar facility, storage system, and associated facilities is a low-intensity use and does not involve development that supports residential, commercial, or industrial subdivision of lands. Furthermore, the proposed Project would be subject to conditions of approval and mitigation measures to avoid creating significant adverse impacts on surrounding uses (for example, dust control during grading to avoid impacts to surrounding agricultural activities).
Policy 10. To encourage effective groundwater resource management for the long-term economic benefit of the county, the following shall be considered: (a) Promote groundwater recharge activities in various zone districts. (b) Support for the development of Urban Water Management Plans and promote Department of Water Resources grant funding for all water providers. (c) Support the development of groundwater management plans. (d) Support the development of future sources of additional surface water and groundwater, including conjunctive use, recycled water, conservation, additional storage of surface water and groundwater, and desalination.	**CONSISTENT.** As discussed in Section 4.10, *Hydrology and Water Quality*, of this Draft EIR, the operator would implement a SWPPP, which would reduce impacts to groundwater quality. The proposed Project would not hinder County efforts to develop Urban Water Management Plans, compromise any Department of Water Resources grant funding, compromise the development of groundwater management plans, or compromise the development of future sources of additional surface and groundwater. During the 35-year lifespan, the proposed Project would contribute to groundwater sustainability by substantially reducing groundwater demand relative to the existing on-site agricultural operations.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Policy 11. Minimize the alteration of natural drainage areas. Require development plans to include necessary mitigation to stabilize runoff and silt deposition through utilization of grading and flood protection ordinances.	**CONSISTENT.** See the project consistency analysis for 1.3, Physical and Environmental Constraints, Policy 11 and Measure D and Measure N of the KCGP, above. The proposed Project would not result in the removal or alteration of any drainages.
Policy 12. Areas identified by the Natural Resource Conservation Service (formerly Soil Conservation Service) as having high range-site value should be conserved for Extensive Agriculture uses or as Resource Reserve, if located within a County water district.	**CONSISTENT.** See the project consistency analysis for 1.9, Resources, Goal 5, of the KCGP, above.
Policy 14. Emphasize conservation and development of identified mineral deposits.	**CONSISTENT.** See the project consistency analysis for 1.9, Resources, Goal 2, of the KCGP, above.
Policy 16. The County will encourage development of alternative energy sources by tailoring its Zoning and Subdivision Ordinances and building standards to reflect Alternative Energy Guidelines published by the California State Energy Commission.	**CONSISTENT.** The proposed Project is subject to Kern County Zoning and Subdivision Ordinances. This includes the recently updated Kern County Fire Department Standard No. 1204-2, for commercial ground mounted solar panels that work to reduce fire risk through the clearance of combustibles, maintenance of fire apparatus access roads, and separations between solar panel array blocks. The proposed Project is being designed to comply with all applicable design and building standards administered by the County.
Policy 25. Discourage incompatible land use adjacent to Map Code 8.4 (Mineral and Petroleum) areas.	**CONSISTENT.** See the project consistency analysis for 1.9, Resources, Goal 2, of the KCGP, above. Additionally, the proposed Project is a low-intensity use and does not involve the development of infrastructure that would restrict adjacent lands from resource exploration and production.
Implementation Measure B. Areas designated as Resource Reserve (Map Code 8.2), Extensive Agriculture (Map Code 8.3), Resource Management (Map Code 8.5) that are under Williamson Act Contracts or Farmland Security Zone Contracts will have a minimum parcel size of 80 acres until such time as a contract is expired or is cancelled, at which time the minimum parcel size will become 20 acres**.**	**CONSISTENT.** As discussed in Section 4.2, *Agriculture and Forestry Resources*, of this Draft EIR, the proposed Project involves 10,689 acres of land enrolled in Williamson Act Contracts or Farmland Security Zone Contracts. The solar facility, battery energy storage system, and associated facilities are not a compatible use according to the Kern County Williamson Act Standard Uniform Rules. The proposed Project would require cancellation of the contracts, which may occur if the Board of Supervisors finds that the cancellation of the contracts is in the public interest. With approval of the cancellation of contracts, the proposed Project would not be in conflict with this goal.
Implementation Measure C. The County Planning Department will seek review and comment from the County Engineering and Survey Services Department on the implementation of NPDES for all discretionary projects.	**CONSISTENT.** The Kern County Planning and Natural Resources Department will notify the Kern County Public Works Department for the review of the analysis of hydrological impacts and compliance with applicable requirements of the NPDES.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Implementation Measure F. Prime agricultural lands, according to the Kern County Interim- Important Farmland map produced by the DOC, which have Class I or II soils and a surface delivery water system, shall be conserved through the use of agricultural zoning with minimum parcel size provisions.	**CONSISTENT.** The proposed Project does not involve a proposed rezoning of the agricultural-zoned lands or a subdivision of any parcels that are located within the Project site. According to the California DOC FMMP, approximately 48 percent of the Project site consists of Prime Farmland, which totals 5,784 acres. However, the conversion of Prime Farmland would support state and local renewable energy goals, produce reliable electricity, and promote economic and energy resiliency. Furthermore, the proposed solar energy facility would preserve the underlying agricultural lands that would allow the properties to resume agricultural production, if the proposed Project is decommissioned. As such, the proposed Project would not involve the permanent conversion of Prime agricultural lands.
Implementation Measure G. Property placed under the Williamson Act/Farmland Security Zone Contract must be in a Resource designation**.**	**CONSISTENT.** See the project consistency analysis for 1.9, Resource, Goal 5, of the KCGP, above.
Implementation Measure H. Use the California Geological Survey's latest maps to locate mineral deposits until the regional and Statewide importance mineral deposits map has been completed, as required by the Surface Mining and Reclamation Act.	**CONSISTENT.** See the project consistency analysis for 1.9, Resource, Goal 1 and Goal 2, of the KCGP, above.
1.10: *GENERAL PROVISIONS*	
Goal 1. Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.	**CONSISTENT.** See the project consistency analysis for 1.9, Resource, Goal 2, above. Consistent with this goal, the Project proponent would develop a photovoltaic solar facility, battery energy storage system, and associated facilities that are not located on a hazardous site. The proposed Project would be subject to Mitigation Measure MM 4.14-2 requiring the Project proponent to pay property taxes or a CIC to provide funding due to the State of California Active Solar Energy Exclusion provision on property taxes that the County would otherwise receive for services and facilities, thereby supporting a prosperous economy and assuring the provision of adequate public services. Further, as described in Sections 4.14, *Public Services*, and 4.17, *Utilities and Service Systems,* of this Draft EIR, adequate public services are available to serve the proposed Project without compromising the provision of such services to other consumers of public services (that is, the proposed Project would not make a cumulatively considerable contribution to cumulative impacts associated with the provision of public services).

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
1.10.1: *PUBLIC SERVICES AND FACILITIES*	
Policy 9. New development should pay its pro rata share of the local cost of expansions in services, facilities, and infrastructure which it generates and upon which it is dependent.	**CONSISTENT.** See the project consistency analysis for 1.4, Public Facilities and Services, Goal 1, above. As discussed in Section 4.14, *Public Services*, of this Draft EIR, the proposed Project would be subject to Mitigation Measures MM 4.14-2 and MM 14.4-3 thereby requiring the proposed Project proponent to pay property taxes or a CIC and SCIS to provide funding for the county budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the County would otherwise receive for services and facilities, assuring the provision of adequate public services and facilities.
Policy 15. Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by CEQA documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.	**CONSISTENT.** See the project consistency analysis for 1.10.1, Public Services and Facilities, Policy 9, of the KCGP, above. The County may make the finding that adequate public and/or private resources are available to serve the proposed solar energy production and storage facility.
Policy 16. The developer shall assume full responsibility for costs incurred in service extensions or improvements that are required to serve the project. Cost sharing or other forms of recovery shall be available when the service extensions or improvements have a specific quantifiable regional significance.	**CONSISTENT.** See the project consistency analysis for 1.10.1, Public Services and Facilities, Policy 9, of the KCGP, above.
Implementation Measure E. All new discretionary development projects shall be subject to the Standards for Sewage, Water Supply, and Preservation of Environmental Health Rules and Regulations administered by the Environmental Health Services Department. Those projects having percolation rates of less than five minutes per inch shall provide a preliminary soils study and site-specific documentation that characterizes the quality of upper groundwater in the project vicinity and evaluation of the extent to which, if any, the proposed use of alternative septic systems will adversely impact groundwater quality. If the evaluation indicates that the uppermost groundwater at the proposed site already exceeds groundwater quality objectives of the RWQCB, or would if the alternative septic system is installed, the applicant shall be required to supply sewage collection, treatment, and disposal facilities.	**CONSISTENT.** The proposed Project would include the development of septic systems for the O&M buildings. Pursuant to Mitigation Measure MM 4.7-2, the proposed Project proponent would be required to obtain all required permits and approvals from the Kern County Environmental Health Services Division and shall implement all required conditions regarding the preparation of site-specific documentation, design, and siting of the septic system.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
1.10.2: *AIR QUALITY*	
Policy 18. The air quality implications of new discretionary land use proposals shall be considered in approval of major developments. Special emphasis will be placed on minimizing air quality degradation in the desert to enable effective military operations and in the valley region to meet attainment goals.	**CONSISTENT.** Air quality and GHG emissions impacts are evaluated in Sections 4.3, *Air Quality*, and 4.8, *Greenhouse Gas Emissions*, of this Draft EIR. Project construction activities would generate ambient concentrations of NO_x and PM_{10} that would exceed SJVACPD thresholds. However, the proposed Project would be subject to Mitigation Measures MM 4.3-1 through MM 4.3-7, which require compliance with all applicable rules and regulations set by the San Joaquin Valley Air Pollution Control District (SJVAPCD); use of dust suppressants on unpaved roads; approval of an Indirect Source Review application by the SJVAPCD; participation in a Developer Mitigation Agreement (DMA) with the SJVAPCD; implementation of construction equipment emission control measures; public notification prior to the start of construction activities; and provision of contact information for the construction coordinator, who will be responsible for responding to and addressing construction-related complaints. Further, Mitigation Measures MM 4.3-8 through MM 4.3-11 involve the submittal of a Valley Fever Dust Management Plan, implementation of a worker environmental awareness program, payment of a fee to support education and outreach program, and the preparation of a COVID-10 Health and Safety Plan, which will reduce health impacts involving air pollutants.
Policy 19. In considering discretionary projects for which an Environmental Impact Report must be prepared pursuant to CEQA, the appropriate decision-making body, as part of its deliberations, will ensure that: (a) All feasible mitigation to reduce significant adverse air quality impacts have been adopted; and (b) The benefits of the project outweigh any unavoidable significant adverse effects on air quality found to exist after inclusion of all feasible mitigation. This finding shall be made in a statement of overriding considerations and shall be supported by factual evidence to the extent that such a statement is required pursuant to CEQA.	**CONSISTENT.** See the project consistency analysis for 1.10.2, Air Quality, Policy 18, above. The proposed Project would be subject to Mitigation Measures MM 4.3-1 through MM 4.3-11 to reduce significant adverse air quality impacts. With the implementation of mitigation, operational impacts would be less than significant but construction impacts would be unavoidably significant. Therefore, a statement of overriding consideration with a finding regarding unavoidably significant air quality impacts will be required to approve the proposed Project.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Policy 20. The County shall include fugitive dust control measures as a requirement for discretionary projects and as required by the adopted rules and regulations of the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District on ministerial permits.	**CONSISTENT.** Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this Draft EIR. Pursuant to SJVAPCD Rule 8201 and required by Mitigation Measure MM 4.3-2, the proposed Project proponent would be required to develop, prepare, submit, obtain approval of, and implement a dust control plan.
Policy 21. The County shall support air districts' efforts to reduce PM_{10} and $PM_{2.5}$ emissions.	**CONSISTENT.** Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this Draft EIR. As discussed in that section, annual construction emissions would not exceed the SJVAPCD significance thresholds for $PM_{2.5}$. The proposed Project would be subject to Mitigation Measures MM 4.3-1 through MM 4.3-3 and Mitigation Measure MM 4.3-5 to reduce emission of PM_{10} through the implementation of a dust control plan, use of dust suppressants, and implementation of other measures. In addition, Mitigation Measure MM 4.3-4 would require the Project proponent to enter into a Developer Mitigation Agreement with the SJVAPCD to further mitigate construction and operations criteria air emissions of proposed Project implementation for vehicle and other mobile source emissions.
Policy 22. Kern County shall continue to work with the San Joaquin Valley Unified Air Pollution Control District and the Kern County Air Pollution Control District toward air quality attainment with federal, state, and local standards.	**CONSISTENT.** Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this Draft EIR. Consistent with this policy, the proposed Project would implement Mitigation Measures MM 4.3-1 through MM 4.3-5, which would reduce impacts to air quality to the extent feasible. The proposed Project would comply with all applicable SJVAPCD rules and regulations.
Implementation Measure F. All discretionary permits shall be referred to the appropriate air district for review and comment.	**CONSISTENT.** Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this Draft EIR. Consistent with this measure, the SJVAPCD received the NOP for this Draft EIR and will continue to receive notices (for example notice of availability of the Draft EIR) during the processing of the entitlements for the proposed Project, thereby facilitating the SJVAPCD's review and comment of the proposed Project.
Implementation Measure G. Discretionary development projects involving the use of tractor trailer rigs shall incorporate diesel exhaust reduction strategies including, but not limited to: ▪ Minimizing idling time. ▪ Electrical overnight plug-ins.	**CONSISTENT.** Air quality impacts are evaluated in Section 4.3, *Air Quality*, of this Draft EIR and considered air emissions from the use of tractor trailer rigs that might be used during construction and decommissioning activities. Consistent with the intent of this measure, implementation of Mitigation Measures MM 4.3-1 and MM 4.3-5 would require diesel exhaust reduction strategies.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Implementation Measure H. Discretionary projects may use one or more of the following to reduce air quality effects: a. Pave dirt roads within the development. b. Pave outside storage areas. c. Provide additional low VOC producing trees on landscape plans. d. Use of alternative fuel fleet vehicles or hybrid vehicles. e. Use of emission control devices on diesel equipment. f. Develop residential neighborhoods without fireplaces or with the use of Environmental Protection Agency certified, low emission natural gas fireplaces. g. Provide bicycle lockers and shower facilities on-site. h. Increasing the amount of landscaping beyond what is required in the Zoning Ordinance (Chapter 19.86). i. The use and development of park and ride facilities in outlying areas. j. Other strategies that may be recommended by the local Air Pollution Control Districts.	**CONSISTENT.** See the project consistency analysis for 1.10.2, Air Quality, Policies 18 through 21, above. The proposed Project would comply with this policy.
Implementation Measure J. The County should include PM_{10} control measures as conditions of approval for subdivision maps, site plans, and grading permits.	**CONSISTENT.** See the project consistency analysis for 1.10.2, Air Quality, Policy 18, above. The proposed Project would comply with this policy.
1.10.3: *ARCHAEOLOGICAL, PALEONTOLOGICAL, CULTURAL, AND HISTORICAL PRESERVATION*	
Policy 25. The County will promote the preservation of cultural and historic resources which provide ties with the past and constitute a heritage value to residents and visitors.	**CONSISTENT.** Cultural resource impacts are evaluated in Section 4.5, *Cultural Resources*, of this Draft EIR. With the implementation of Mitigation Measures MM 4.5-1 through MM 4.5-6 the proposed Project would comply with this policy to promote the preservation of cultural and historic resources.
Implementation Measure K. Coordinate with the California State University, Bakersfield's Archaeology Inventory Center.	**CONSISTENT.** As discussed in Section 4.5, *Cultural Resources*, of this Draft EIR, the analysis of potential impacts to cultural resources was based, in part, on the results of a records search conducted at the Southern San Joaquin Valley Information Center at California State University, Bakersfield.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Implementation Measure L. The County shall address archaeological and historical resources for discretionary projects in accordance with CEQA.	**CONSISTENT.** Cultural resource impacts are evaluated in Section 4.5, *Cultural Resources*, of this Draft EIR. Consistent with this measure, impacts to archaeological and historical resources were evaluated in accordance with CEQA.
Implementation Measure M. In areas of known paleontological resources, the County should address the preservation of these resources where feasible.	**CONSISTENT.** Paleontological resource impacts are evaluated in Section 4.7, *Geology and Soils*, of this Draft EIR. There are no known, significant paleontological resources on-site. Further, given the potential to encounter currently unknown subsurface paleontological resources that may exist on-site, the proposed Project would be subject to Mitigation Measures MM 4.7-3 through MM 4.7-5, which would avoid or otherwise reduce potential impacts to paleontological resources through hiring a qualified paleontologist to monitor all ground-disturbing activity, documenting discovered resources, and implementing appropriate mitigation measures (for example, preservation of resources in situ or by removal and curation of them).
Implementation Measure N. The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.	**CONSISTENT.** Tribal Cultural resource impacts are evaluated in Section 4.16, *Tribal Cultural Resources*, of this Draft EIR. Consistent with this measure, notification regarding the proposed Project was accomplished in accordance with AB 52 and the established procedures for preparing discretionary projects and CEQA documents for County decisionmakers consideration.
Implementation Measure O. On a project-specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.	**CONSISTENT.** Cultural resource impacts are evaluated in Section 4.5, *Cultural Resources,* of this Draft EIR. As stated in Mitigation Measures MM 4.5-1 through MM 4.5-6, a Native American monitor(s) will be required to monitor ground disturbance activities in areas that have the potential to exhibit subsurface resources.
1.10.5: *THREATENED AND ENDANGERED SPECIES*	
Policy 27. Threatened or endangered plant and wildlife species should be protected in accordance with State and federal laws.	**CONSISTENT.** Biological resources impacts are evaluated in Section 4.4, *Biological Resources*, of this Draft EIR. As stated in that section, the proposed Project will be subject to Mitigation Measures MM 4.4-1 through MM 4.4-25 to avoid or reduce impacts to listed species (for example, federally- and state-listed threatened and endangered species). Additionally, the proposed Project would be developed and operated in accordance with all local, state and federal laws pertaining to the preservation of sensitive species.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Policy 28. County should work closely with State and federal agencies to assure that discretionary projects avoid or minimize impacts to fish, wildlife, and botanical resources.	**CONSISTENT.** Biological resources impacts are evaluated in Section 4.4, *Biological Resources*, of this Draft EIR. As stated in that section, Kern County staff provided a copy of the NOP of this Draft EIR to CDFW and the United States Fish and Wildlife Service and received comments from CDFW. (See the comments on the NOP included in Appendix A.2 of this Draft EIR.) Mitigation Measures have been identified as appropriate given the findings of the analysis of impacts to biological resources. Further, both of these agencies will be notified of the availability of, and opportunity to comment on, the Draft EIR's mitigation requirements regarding biological resources and the Final EIR will include responses to any comments that are received and will incorporate any needed changes to the EIR in response to comments received.
Policy 29. The County will seek cooperative efforts with local, State, and federal agencies to protect listed threatened and endangered plant and wildlife species through the use of conservation plans and other methods promoting management and conservation of habitat lands.	**CONSISTENT.** Biological resource impacts are evaluated in Section 4.4, *Biological Resources*, of this Draft EIR. The analysis of impacts and identification of mitigation measures was based (in part) on CDFW comments submitted in response to the NOP, and databases and other information that CDFW and the United States Fish and Wildlife Service (USFWS) maintain and publish for use when conducting the analysis of impacts to special status species (e.g., protocols for mitigating impacts to special status species). The proposed Project would not conflict with an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan. The Kern County Valley Floor Habitat Conservation Plan is in draft form and has not been adopted. Finally, certain mitigation measures (e.g., Mitigation Measures MM 4.4-9) require compliance with any Habitat Conservation Plan which may apply to a special status species, and use of other methods (e.g., preservation and/or conservation) of habitat that may support special status species (e.g., Mitigation Measures MM 4.4-4, MM 4.4-7, MM 4.4-21 and MM 4.4-25).
Policy 31. Under the provisions of CEQA, the County, as Lead Agency, will solicit comments from the California Department of Fish and Game and the U.S. Fish and Wildlife Service when an environmental document (Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report) is prepared.	**CONSISTENT.** See the project consistency analysis for 1.10.5, Threatened and Endangered Species, Policies 27, 28, and 29, above. In addition, a copy of the Notice of Availability/Notice of Completion of the Draft EIR will be sent to CDFW and USFWS for their review and comment on the adequacy of the analysis of impacts to biological resources.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Policy 32. Riparian areas will be managed in accordance with USACE, and the California Department of Fish and Game rules and regulations to enhance the drainage, flood control, biological, recreational, and other beneficial uses while acknowledging existing land use patterns.	**CONSISTENT.** Biological resources impacts and impacts to riparian areas are evaluated in Section 4.4, *Biological Resources*, of this Draft EIR. The proposed Project would not result in impacts to waters of the United States and, therefore, is not subject to regulations that the United States Army Corps of Engineers enforces. However, the proposed Project would result in impacts to riparian areas, wetlands, and streambeds under RWQCB and CDFW jurisdictions. The proposed Project would be subject to Mitigation Measure MM 4.4-23, which requires the Project proponent to coordinate with CDFW and obtain a Lake and Streambed Alteration permit and mitigate at a minimum of 2:1 with purchase of credits or through other Project proponent-sponsored and approved mitigation
Implementation Measure Q. Discretionary projects shall consider effects to biological resources as required by CEQA.	**CONSISTENT.** Biological resources impacts are evaluated in Section 4.4, *Biological Resources*, of this Draft EIR. Consistent with this measure, the evaluation of impacts to biological resources was performed in accordance with CEQA.
Implementation Measure R. Consult and consider the comments from responsible and trustee wildlife agencies when reviewing a discretionary project subject to CEQA.	**CONSISTENT.** See the analysis of project consistency with Policy 28, above. As stated above, both responsible and trustee agencies (for example, CDFW) were provided opportunities to comment on the analysis of impacts to biological resources. The analysis of impacts set forth in Section 4.4, *Biological Resources*, of this Draft EIR, is based (in part) on consideration of comments received, to date, from these agencies. The County has and will continue to respond to all comments from reviewing agencies during the CEQA process (for example, comments received on the Draft EIR).
Implementation Measure S. Pursue the development and implementation of conservation programs with State and federal wildlife agencies for property owners desiring streamlined endangered species mitigation programs.	**CONSISTENT.** Biological resources impacts are evaluated in Section 4.4, *Biological Resources*, of this Draft EIR. See the project consistency analysis for 1.10.5, Threatened and Endangered Species, Policy 25. Although the proposed Project does not involve the development of a conservation program with CDFW and/or USFWS, certain mitigation measures (e.g., Mitigation Measures MM 4.4-9) require compliance with any Habitat Conservation Plan which may apply to a special status species.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
1.10.6: *SURFACE WATER AND GROUNDWATER*	
Policy 34. Ensure that water quality standards are met for existing users and future development.	**CONSISTENT.** Water quality impacts are evaluated in Section 4.10, *Hydrology and Water Quality*, of this Draft EIR. Consistent with this policy, the Project proponent would implement best management practices during construction to avoid impacts to water quality. The Project proponent also would implement a hazardous materials business plan to reduce mixing of pollutants with stormwater on-site, thereby maintaining the integrity of the watershed. In addition, per Mitigation Measure MM 4.10-1 in Section 4.10, *Hydrology and Water Quality*, of this Draft EIR, the Project proponent would be required to implement a SWPPP, which would include best management practices to prevent soil erosion and the discharge of construction-related pollutants that could contaminate water quality. In addition, prior to the commencement of construction activities, the Project proponent would be required to adhere to the requirements of the Kern County Grading Code. This includes implementation of various measures designed to prevent erosion and control drainage on-site, thereby further preventing the potential sedimentation and subsequent degradation of stormwater.
Policy 41. Review development proposals to ensure adequate water is available to accommodate projected growth.	**CONSISTENT.** Section 4.17, *Utilities and Service Systems*, of this Draft EIR, provides an analysis of water supplies available to serve the proposed Project. A project-specific Water Supply Assessment was prepared for this analysis (EIR Appendix I.2). Based on estimated project construction and operational water demands per the report, there is sufficient water available to meet the future water demands of the proposed Project during normal, single dry, and multiple dry years throughout the life of the proposed Project and impacts related to water supply would be less than significant.
Policy 43. Drainage shall conform to the Kern County Development Standards and the Grading Ordinance.	**CONSISTENT.** See the project consistency analysis for 1.9, Resources, Policy 11, above.
Policy 44. Discretionary projects shall analyze watershed impacts and mitigate for construction-related and urban pollutants, as well as alterations of flow patterns and introduction of impervious surfaces as required by CEQA, to prevent the degradation of the watershed to the extent practical.	**CONSISTENT.** Section 4.10, *Hydrology and Water Quality*, of this Draft EIR, discusses impacts and mitigation for potential impacts to the watershed during construction from pollutants, alteration of flow patterns, and changes in impervious surfaces. Consistent with this policy, construction-related impacts related to alteration of flow patterns and impervious surfaces would be less than significant with the implementation of Mitigation Measure MM 4.10-2, which would require the Project proponent to submit a drainage plan to the County for review and approval, and implement the drainage plan to avoid potential increases in runoff from the Project site.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Implementation Measure Y. Promote efficient water use by utilizing measures such as: i. Requiring water-conserving design and equipment in new construction. ii. Encouraging water-conserving landscaping and irrigation methods. iii. Encouraging the retrofitting of existing development with water-conserving devices.	**CONSISTENT.** Impacts regarding public utilities are discussed in Section 4.19, *Utilities and Service Systems*, of this Draft EIR. As discussed therein, the proposed Project would require water for dust suppression, fire protection, and panel washing. Water usage during construction, primarily for dust-suppression purposes, is not anticipated to exceed 1,000 AFY and a total of 3,500 AF over a construction period of up to five years.. The water would be trucked and stored on-site and would not substantially decrease groundwater supplies within the Subbasin.
1.10.7: *LIGHT AND GLARE*	
Policy 47. Ensure that light and glare from discretionary new development projects are minimized in rural as well as urban areas.	**CONSISTENT.** Aesthetic impacts are evaluated in Section 4.1, *Aesthetics*, of this Draft EIR. As discussed in that section, Mitigation Measure MM 4.1-5 would require compliance with the Dark Skies Ordinance (Chapter 19.81 of the KCZO) and would result in the minimum illumination needed to achieve safety and security objectives. Furthermore, pursuant to Mitigation Measures MM 4.1-6 and MM 4.1-7, the Project proponent must design the proposed Project with emerging technologies that reduce the refractive index to reduce glare, and submit proposed Project plans that include these glare-reducing technologies and non-reflective materials to the Kern County Planning and Natural Resources Department for review prior to the issuance of building permits.
Policy 48. Encourage the use of low-glare lighting to minimize nighttime glare effects on neighboring properties.	**CONSISTENT.** See the analysis of project consistency with 1.10.7, Light and Glare, Policy 47, above.
Implementation Measure AA. The County shall utilize CEQA Guidelines and the provisions of the Zoning Ordinance to minimize the impacts of light and glare on adjacent properties and in rural undeveloped areas.	**CONSISTENT.** See the analysis of project consistency with 1.10.7, Light and Glare, Policy 47, above.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
CHAPTER 2: *CIRCULATION ELEMENT*	
2.1: *INTRODUCTION*	
Goal 4. Kern County will plan for a reduction of environmental effects without accepting a lower quality of life in the process.	**CONSISTENT.** See the analysis of project consistency with 1.3, Physical and Environmental Constraints, Goal 1, of the KCGP, above.
Goal 5. Maintain a minimum Level Of Service (LOS) D for all roads throughout the County unless the roads are part of an adopted Community Plan or Specific Plan which utilizes Smart Growth policies that encourage efficient multi-modal movements (See Section 1.10.8).	**CONSISTENT.** Traffic impacts are evaluated in Section 4.15, *Transportation*, of this Draft EIR. As discussed in that section, during construction the Magnolia Avenue/7th Standard Road intersection would operate at LOS E with the proposed Project-added traffic during the PM peak hour. However, construction activities would be limited (estimated to occur over five years) and the implementation of Mitigation Measure MM 4.15-1 would reduce the potential for project related construction vehicles to impact the intersections by limiting construction vehicle worker vehicle trips to the extent possibles during the AM and PM peak periods and implementing additional measures if the Kern County Public Works Department indicates that either AM or PM peak hour construction trips exceed the peak hour construction worker vehicle limits. Additionally, the implementation of Mitigation Measure MM 4.15-2 would require the Project proponent to implement a Construction Traffic Control Plan which would include measures such as timing worker arrivals and departures and material deliveries to avoid peak hours and the use of flaggers to direct construction traffic. Once construction is complete, the LOS would return to acceptable conditions (LOS D or better).
2.3.3: *HIGHWAY PLAN*	
Goal 5. Maintain a minimum LOS D.	**CONSISTENT.** See the analysis of project consistency with 2.1, Introduction, Goal 5, of the KCGP, above.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Policy 1. Development of roads within the County shall be in accordance with the Circulation Diagram Map. The charted roads are usually on section and mid-section lines. This is because the road centerline can be determined by an existing survey.	**CONSISTENT.** Section 4.15, *Transportation*, of this Draft EIR provides an analysis of consistency with County circulation policies. The proposed Project does not involve the construction of new public roadways, but would require development to accommodate the proposed Project (for example, construction of new driveways from public roads to access the Project site). Consistent with this policy, all road improvements (for example, driveway locations, dimensions, and materials) would be completed per Caltrans and/or County code and regulations (for example, KCZO requirements). Additionally, the proposed Project includes amendments to the Circulation Element to remove future road reservations on the section and mid-section lines within the Project site. Provided that the Board of Supervisors makes the findings for approval of the requested amendments, the proposed Project would be consistent with Policy 1.
Policy 3. Policy 3. This plan's road-width standards are listed below. These standards do not include state highway widths that would require additional right-of-way for rail transit, bike lanes, and other modes of transportation. Kern County shall consider these modifications on a case by-case basis. ▪ Expressway [Four Travel Lanes] Minimum 110-foot right-of-way; ▪ Arterial [Major Highway] Minimum 110-foot right-of-way; ▪ Collector [Secondary Highway] Minimum 90-foot right-of-way; ▪ Commercial-Industrial Street Minimum 60-foot right-of-way; and ▪ Local Street [Select Local Road] Minimum 60-foot right-of-way	**CONSISTENT.** The proposed Project includes the construction of access roads to the site and internal roads throughout the Project site and is subject to Kern County Access Road Design and Encroachment permits, which will be reviewed during the County discretionary approval process. Road alignments are dependent on final placement of solar panels, with consideration for fire apparatus pursuant to Kern County Fire Department Standard No. 1204-02, Solar Panels Ground Mounted (Commercial).
Implementation Measure A. The Planning Department shall carry out the road network Policies by using the Kern County Land Division Ordinance and Zoning Ordinance, which implements the Kern County Development Standards that includes [*sic*] road standards related to urban and rural planning requirements. These ordinances also regulate access points. Planning Department can help developers and property owners in identifying where planned circulation is to occur.	**CONSISTENT.** See the analysis of project consistency with 2.3.3, Highway Plan, Policy 1, of the KCGP, above.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Implementation Measure C. Conformance to alignment minimum design standards, where roadways that deviate from section and mid-section lines intersect those lines, must be reviewed and approved in conjunction with project adoption on an individual basis.	**CONSISTENT.** See the analysis of project consistency with 2.3.3, Highway Plan, Policy 1, of the KCGP, above.
2.3.4: *FUTURE GROWTH*	
Goal 1. To provide ample flexibility in this plan to allow for growth beyond the 20-year planning horizon.	**CONSISTENT.** The proposed Project includes the removal of future road reservations in for optimal solar panel placement. However, the Project proponent is required to also restore access to any affected parcels through the recording of an alternative private access easement. This would ensure that, at the discretion of the Project operator, the project could continue to operate and generate power, or decommission and remove the system and its components.
Policy 2. The County should monitor development applications as they relate to traffic estimates developed for this plan. Mitigation is required if development causes affected roadways to fall below Level Of [sic] Service (LOS) D. However, development proposed as part of a Community Plan or Specific Plan which utilizes Smart Growth Policies that encourage efficient multi-modal movements (See Section 1.10.8) is allowed the flexibility to assess traffic and safety impacts through other means than Level Of Service (LOS). U Utilization of the CEQA process would help identify alternatives to or mitigation for such developments. Mitigation could involve amending the Land Use, Open Space and Conservation Element to establish jobs/housing balance if projected trips in any traffic zone exceed trips identified for this Circulation Element. Mitigation could involve exactions to build off-site transportation facilities. These enhancements would reduce traffic congestion to an acceptable level.	**CONSISTENT.** See the analysis of project consistency with 2.1, Introduction, Goal 5, of the KCGP, above. Further, as described in Section 4.15, *Transportation*, of this Draft EIR, impacts related to LOS are not considered "environmental impacts" pursuant to CEQA; nevertheless, this Draft EIR evaluated the proposed Project's impacts regarding LOS and includes Mitigation Measure MM 4.15-1 to reduce the impacts resulting from the degradation of the Magnolia Avenue/7th Standard Road intersection to LOS E with the proposed Project-added construction traffic during the PM peak hour. Given that the impact would occur for a limited period (that is, the estimated five-year construction period) and can be mitigated with the implementation of Mitigation Measure MM 4.15-1 thereby requiring the proposed Project proponent to implement a Traffic Control Plan, an amendment to the Land Use, Open Space and Conservation Element affecting the jobs/housing balance is not required.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Policy 4. As a condition of private development approval, developers shall build roads needed to access the existing road network. Developers shall build these roads to County standards unless improvements along state routes are necessary then roads shall be built to Caltrans standards. Developers shall locate these roads (width to be determined by the Circulation Plan) along centerlines shown on the Circulation Diagram Map unless otherwise authorized by an approved Specific Plan Line. Developers may build local roads along lines other than those on the Circulation Diagram Map. Developers would negotiate necessary easements to allow this.	**CONSISTENT.** See the analysis of project consistency with 2.3.3, Highway Plan, Policy 1, of the KCGP, above.
Policy 5. When there is a legal lot of record, improvement of access to County, city or state roads will require funding by sources other than the County. Funding could be by starting a local benefit assessment district or, depending on the size of a project, direct development impact fees.	**CONSISTENT.** Consistent with this policy, the Project proponent would fund the construction of the driveways that would afford access from public roadways to the Project site.
Policy 6. The County may accept a developer's road into the county's maintained road system. This is at Kern County's discretion. Acceptance would occur after the developer follows the above requirements. Roads are included in the County road maintenance system through approval by the Board of Supervisors.	**CONSISTENT.** The proposed Project does not include the development of a public road.
Implementation Measure C. Project development shall comply with the requirements of the KCZO, Land Division Ordinance, and Development Standards.	**CONSISTENT.** As stated in Section 4.15, *Transportation*, Impacts 4.15-1, 4.15-3, and 4.15-4, of this Draft EIR, with the implementation of Mitigation Measures MM 4.15-1 and MM 4.15-2, the proposed Project will comply with the applicable requirements of the KCZO and Development Standards. The proposed Project does not involve a subdivision or lot line adjustment and, therefore, is not subject to the Land Division Ordinance.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
2.3.6: *VACATION OF EXISTING OR RECORDED FUTURE STREETS, HIGHWAYS, OR PUBLIC EASEMENTS*	
Policy 3. If the road vacation applicant is a private entity, all costs for the public hearing shall be borne by the applicant. Also, costs associated with providing any necessary additional public road services or other traffic management caused by the road vacation shall be paid by the applicant.	**CONSISTENT.** as discussed in Section 4.15, *Transportation,* of this Draft EIR, the proposed Project requires an amendment to the Circulation Element to remove future road reservations on the section and mid-section lines within the proposed Project boundary. The Project proponent would be required to pay the fees for all public hearings (for example, Board of Supervisors) involving the proposed Project and the costs associated with implementing Mitigation Measures MM 4.15-1 and MM 4.15-2 (for example, payment of Encroachment Permit fees).
Policy 4. The vacation of a road shall not take away legal access to adjacent properties or "land-lock" any legal lot or parcel of record. Legal access shall be determined through a report submitted with the application for road vacation.	**CONSISTENT. A**s stated above, the proposed Project involves the removal of future road reservations on the section and mid-section lines within Site 1 and Site 5, which requires the vacations of public access easements. To restore access to any affected parcel, the Project proponent would be required to record a separate, alternative private access easement, which would be recorded concurrent with the vacation of the original public easement. The removal of the future road reservations would not deny legal access to properties located adjacent to these road reservations or land-lock a legal
2.3.10: *CONGESTION MANAGEMENT PROGRAMS*	
Goal 1. To satisfy the trip reduction and travel demand requirements of the Kern Council of Government's Congestion Management Program.	**CONSISTENT.** As described in Section 4.15, Transportation, of this Draft EIR, the proposed Project would cause an increase in trips associated with the proposed construction activities. However, the construction period would be limited in duration (estimated to be five years) and there are no pedestrian, bicycle, or public transit facilities (for example, bus routes) located within the vicinity of the Project site that could provide a feasible alternative for accessing the site and reduce the number of trips. Further, proposed Project operations are estimated to generate 40 daily trips which is less than the 110 daily trips threshold set forth in the Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR 2018) and are assumed to have an insignificant impact regarding vehicle miles traveled. Therefore, the proposed Project would not conflict with trip reduction and/or travel demand requirements of the Kern Council of Government's Congestion Management Program (CMP).
Goal 2. To coordinate congestion management and air quality requirements and avoid multiple and conflicting requirements.	**CONSISTENT.** The proposed Project does not involve an amendment to existing congestion management and/or air quality requirements and, therefore, does not have the potential to create multiple and/or conflicting requirements.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Policy 1. Pursuant to California Government Code 65089(a), Kern County has designated Kern Council of Governments as the County's Congestion Management Agency (CMA).	**CONSISTENT.** The proposed Project recognizes Kern Council of Governments as the Congestion Management Agency. As illustrated in Section 4.15, *Transportation*, the baseline for daily Vehicle Miles Traveled relies upon data provided by the Kern Council of Governments (Appendix K).
Policy 2. The Congestion Management Agency is responsible for developing, adopting, and annually updating a Congestion Management Plan. The Plan is to be developed in consultation with, and with the cooperation of, the regional transportation agency (also Kern Council of Governments), regional transportation providers, local governments, Caltrans, and the air pollution control district	**CONSISTENT.** See Policy 1. Traffic impacts are evaluated in Section 4.15, *Transportation*, of this Draft EIR. Consistent with this policy, the proposed Project would comply with the requirements of the Kern County Zoning Ordinance, Land Division Ordinance, and Development Standards and would not conflict with Kern COG's Congestion Management Program.
Implementation Measure A. Kern County Council of Governments should request the proper consultation from County of Kern to develop and update the proper congestion management program.	**CONSISTENT.** See 2.3.10, *Congestion Management Program*, Goals 1 and 2, and Policies 1 and 2, above.
Implementation Measure B. The elements within the Kern CMP are to be implemented by each incorporated city and the County of Kern. Specifically, the land use analysis program, including the preparation and adoption of deficiency plans is required. Additionally, the adoption of trip reduction and travel demand strategies are required in the Congestion Management Program.	**CONSISTENT.** The CMP requires project leads to prepare a plan of remedial actions (deficiency plan) when a roadway level of service standard is not maintained on the regional roadway network. The plan may be addressed in a stand-alone traffic impact study or as part of the environmental document. As described in Section 4.15, *Transportation*, of this Draft EIR, the proposed Project was the subject of a traffic impact study that Kern County reviewed for adequacy. The traffic impact study revealed that construction-related traffic has the potential to degrade the LOS of the Magnolia Avenue/7th Standard Road intersection to LOS E during the PM peak hour. However, this impact would occur for a limited period (that is, the estimated five-year construction period) and would be mitigated with the implementation of Mitigation Measure MM 4.15-1 thereby requiring the Project proponent to implement a Traffic Control Plan. Therefore, with the implementation of Mitigation Measure MM 4.15-1, Kern County will effectively implement the portions of the CMP over which it has responsibility.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
2.5.1: *TRUCKS AND HIGHWAYS*	
Goal 1. Provide for Kern County's heavy truck transportation in the safest way possible.	**CONSISTENT.** As noted in Section 4.15, *Transportation*, the Project proponent must maintain an acceptable Level of Service at nearby intersections affected by construction traffic. This would be achieved through the implementation of Mitigation Measure MM 4.15-1, which requires the submittal and approval of a Construction Traffic Control Plan that outlines methods used to limit worker vehicle traffic, specifically during peak periods. Achieving an acceptable Level of Service prevents unstable operations, where volumes of traffic would be at or near capacity, limiting unsafe heavy truck operations. Additionally, the Construction Traffic Control Plan, per Mitigation Measure 4.15-2, would include safety requirements such as signage, a flag person directing traffic, and consultation for coordinated plans with neighboring projects that would address any detours adjacent to the construction area.
Goal 2. Reduce potential overweight trucks.	**CONSISTENT.** See Goal 1. Incorporation of Mitigation Measure MM 4.15-2 requires the Project proponent to utilize documentation that identifies roads used for construction and sets responsibility on the Project proponent/proponent for any damage to non-county-maintained roads from construction activities. This measure would encourage only necessary overweight trucks to make deliveries to the Project site, reducing unnecessary overweight trucks to the Project site. Additionally, the Construction Traffic Control Plan to specific oversize load haul routes to avoid residential neighborhoods to the extent feasible.
Goal 3. Use State Highway System improvements to prevent truck traffic in neighborhoods.	**CONSISTENT.** See Goal 2. The Project proponent/operator would submit and obtain approval of a Construction Traffic Control Plan, in accordance with Caltrans Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook, and would avoid residential neighborhoods to the maximum extent feasible, per Mitigation Measure MM 4.15-2.
Policy 1. Caltrans should be made aware of the heavy truck activity on Kern County's roads.	**CONSISTENT.** Caltrans will be notified of the availability of, and opportunity to comment on, the Draft EIR's mitigation requirements regarding transportation resources and the Final EIR will include responses to any comments that are received and will incorporate any needed.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
2.5.4: *TRANSPORTATION OF HAZARDOUS MATERIALS*	
Goal 1. Reduce risk to public health from transportation of hazardous materials.	**CONSISTENT.** Section 4.9, *Hazards and Hazardous Materials*, of this Draft EIR provides a discussion of Hazardous Materials Transportation and existing regulatory requirements of the California Vehicle Code that pertain to transport of hazardous materials and wastes. Consistent with this policy, the proposed Project would not pose a significant risk to public health from transportation of hazardous materials with implementation of Mitigation Measure MM 4.9-1, which requires the preparation of a hazardous materials business plan that would (1) describe the handling, storage, transport, and disposal techniques and methods to be used to avoid spills and minimize impacts in the event of a spill, and (2) ensure that all handling, storage, and disposal of hazardous materials are conducted in accordance with proven practices to minimize exposure to maintenance workers and/or the public.
Policy 1. The commercial transportation of hazardous material, identification and designation of appropriate shipping routes will be in conformance with the adopted Kern County and Incorporated Cities Hazardous Waste Management Plan.	**CONSISTENT.** See the analysis of project consistency with 2.5.4, Transportation of Hazardous Materials, Goal 1, above.
Policy 2. Kern County and affected cities should reduce use of County-maintained roads and city-maintained streets for transportation of hazardous materials.	**CONSISTENT.** See the analysis of project consistency with 2.5.4, Transportation of Hazardous Materials, Goal 1, above.
Implementation Measure A. Roads and highways utilized for commercial shipping of hazardous waste destined for disposal will be designated as such pursuant to Vehicle Code Sections 31303 et seq. Permit applications shall identify commercial shipping routes they propose to utilize for particular waste streams.	**CONSISTENT.** All hazardous waste shipped off-site for recycling or disposal would be transported by a licensed and permitted hazardous waste hauler, as discussed in Section 4.9, *Hazards and Hazardous Materials*. Per Mitigation Measure MM 4.9-1, the Project proponent shall prepare and maintain a Hazardous Materials Business Plan, which would describe the handling, storage, transport, and disposal techniques of hazardous materials pursuant to Article 1 and Article 2 of the California Health and Safety Code.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
CHAPTER 3: *NOISE ELEMENT*	
Goal 1. Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.	**CONSISTENT.** Noise impacts, sensitive receptors, and County noise thresholds are evaluated in Section 4.13, *Noise*, of this Draft EIR. As discussed in that section, proposed Project construction would result in a noticeable increase in noise levels near existing residences. However, the implementation of Mitigation Measure MM 4.13-1 would: limit noise-generating construction activities pursuant to the requirements of the Kern County Code and if noise-generating construction activities must occur outside of the days and/or times when noise-generating construction activities may occur, the Project proponent would be required to implement a noise control plan; reduce temporary increases in ambient noise levels by requiring equipment to be placed in areas that would create the greatest distance between the noise source and the noise-sensitive receptor; and the use of equipment with noise-reducing features (for example, mufflers). Project operational noise, including noise generated by traffic, would not result in excessive noise (for example, noise that exceeds the maximum acceptable level for noise-sensitive receptors).
Goal 2. Protect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.	**CONSISTENT.** The proposed Project involves the construction, operation, and decommissioning of a solar PV energy production and storage facility and does not include a noise-sensitive receptor. Therefore, the proposed Project does not have the potential to introduce a noise-sensitive receptor (that is, incompatible land use) near known noise producing roadways, industries, railroads, airports, oil and gas extraction, and/or other sources of elevated noise.
Policy 1. Review discretionary industrial, commercial, or other noise-generating land use projects for compatibility with nearby noise-sensitive land uses.	**CONSISTENT.** Section 4.13, *Noise* details all noise impacts related to the construction and operational activities of the proposed Project. Additionally, any ground-disturbing activities that occur outside the permitted hours requires the Project proponent to submit a noise consultant prepared noise control plan to the satisfaction of the development services agency director or designated representative.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Policy 2. Require noise level criteria applied to all categories of land uses to be consistent with the recommendations of the California DOSH.	**CONSISTENT.** See the analysis of project consistency with 3, Noise Element, Goal 1, above, as well as the analysis of noise impacts set forth in Section 4.13, *Noise*, of this Draft EIR. The thresholds and standards that were used to evaluate noise impacts are based (in part) on recommendations and requirements of the DOSH. As stated in the analysis, proposed Project construction has the potential to exceed the maximum acceptable levels for sensitive receptors. However, Mitigation Measure MM 4.13-1 would involve the implementation of noise reduction measures to achieve acceptable noise levels pursuant to DOSH requirements (for example, use of back-up beepers that are broadband sound alarms or adjusted to the lowest, possible noise levels, for construction equipment and vehicles).
Policy 3. Encourage vegetation and landscaping along roadways and adjacent to other noise sources to increase absorption of noise.	**CONSISTENT.** See the analysis of project consistency with 3, Noise Element, Goal 1, above. Operation of the PV facility would not include uses that would substantially increase noise (for example, substantial increases in traffic) thereby warranting consideration of the installation of vegetation and/or landscaping for noise reduction purposes.
Policy 4. Utilize good land use planning principles to reduce conflicts related to noise emissions.	**CONSISTENT.** See the analysis of project consistency with 3, Noise Element, Goal 1, above.
Policy 7. Employ the best available methods of noise control.	**CONSISTENT.** See the analysis of project consistency with 3, Noise Element, Goal 1, above.
Implementation Measure A. Utilize zoning regulations to assist in achieving noise-compatible land use patterns.	**CONSISTENT.** As stated above, the KCZO requires a CUP—a discretionary land use entitlement that is subject to CEQA environmental review—for the proposed Project. As discussed in Section 4.13, *Noise*, of this Draft EIR, the CEQA environmental analysis of the proposed Project involved consideration of the proposed Project's potential noise impacts. The analysis revealed the potential for construction noise to exceed the maximum acceptable noise levels for residential uses located within the vicinity of the Project site and, therefore, recommends the implementation of Mitigation Measure MM 4.13-1 to reduce construction-related noise to acceptable levels.
Implementation Measure C. Review discretionary development plans, programs and proposals, including those initiated by both the public and private sectors, to ascertain and ensure their conformance to the policies outlined in this element.	**CONSISTENT.** Consistent with this measure, this Draft EIR analyzes the proposed Project for conformance with the applicable policies of the Noise Element.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Implementation Measure F. Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise-sensitive land uses to exterior noise levels in excess of 65 dB L_{dn} and interior noise levels in excess of 45 dB L_{dn}.	**CONSISTENT.** See the analysis of project consistency with 3, Noise Element, Goal 1, above.
Implementation Measure G. At the time of any discretionary approval, such as a request for a General Plan Amendment, zone change or subdivision, the developer may be required to submit an acoustical report indicating the means by which the developer proposes to comply with the noise standards. The acoustical report shall: a) Be the responsibility of the applicant. b) Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics. c) Be subject to the review and approval of the Kern County Planning Department and the Environmental Health Services Department. All recommendations therein shall be complied with prior to final approval of the project.	**CONSISTENT.** Consistent with this measure, the Project proponent prepared an acoustical report (noise study) that evaluated the proposed Project's noise impacts pursuant to the requirements of the Noise Element (Appendices J.1 and J.2 of this Draft EIR). As discussed in Section 4.13, *Noise*, of this Draft EIR, consistent with the recommendations of the noise study, the proposed Project would be subject to Mitigation Measure MM 4.13-1 to reduce construction noise to a less than significant level.
Implementation Measure I: Noise analyses shall include recommended mitigation, if required, and shall: a) Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions. b) Include estimated noise levels, in terms of CNEL, for existing and projected future (10–20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element. c) Include recommendations for appropriate mitigation to achieve compliance with the adopted policies and standards of the Noise Element. d) Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of the project must be provided.	**CONSISTENT.** Consistent with this measure, the Project proponent prepared an acoustical report (noise study) that evaluated the proposed Project's noise impacts pursuant to the requirements of the Noise Element (Appendices J.1 and J.2 of this Draft EIR). The noise study assessed the proposed Project's noise impacts using representative noise measurements, recommended best management practices, estimated noise levels in terms of CNEL, and estimates of noise exposure. As discussed in Section 4.13, *Noise*, of this Draft EIR, consistent with the recommendations of the noise study, the proposed Project would be subject to Mitigation Measure MM 4.13-1 to reduce construction noise to a less than significant level and, consequently, would comply with the requirements of Implementation Measure I.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Implementation Measure J. Develop implementation procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are conducted as part of the project permitting process.	**CONSISTENT.** As discussed in Section 4.13, *Noise*, of this Draft EIR, the proposed Project would be subject to Mitigation Measure MM 4.13-1 to implement the recommendations of the noise study, which would reduce construction noise to a less than significant level and, consequently, would comply with the requirements of Implementation Measure J.
CHAPTER 4: *SAFETY ELEMENT*	
Goal 1. Minimize injuries and loss of life and reduce property damage.	**CONSISTENT.** As discussed in Section 4.14, *Public Services*, of this Draft EIR, the proposed Project would increase demand for fire protection and emergency response services from the KCFD. The Project proponent would be subject to Mitigation Measure MM 4.14-1 that requires the preparation and implementation of a fire safety plan that would contain notification procedures and emergency fire precautions consistent with the 2022 California Fire Code and Kern County Fire Code. Further, implementation of Mitigation Measure MM 4.14-2 would require the Project proponent to pay property taxes or a Kern County CIC to pay for the proposed Project's pro rata demand for services and facilities.
Goal 5. Ensure the availability and effective response of emergency services following a catastrophic event.	**CONSISTENT.** See the analysis of project consistency with 4, Safety Element, Goal 1, above. In addition, as described in Section 4.10, *Hydrology and Water Quality,* the Project site is within the Lake Isabella dam inundation areas as defined by the KCGP. In the event that evacuation is necessary, the Kern County/Operational Area will activate Emergency Operations Centers and evacuation recommendations will be disseminated by all available means.
Goal 7. Ensure that adequate emergency services and facilities are available to the residents of Kern County through the coordination of planning and development of emergency facilities and services.	**CONSISTENT.** See the analysis of project consistency with 4, Safety Element, Goal 1, above.
4.2: GENERAL POLICIES AND IMPLEMENTATION MEASURE, WHICH APPLY TO MORE THAN ONE SAFETY CONSTRAINT	
Policy 1. That the County's program of identification, mapping, and evaluating the geologic, fire, flood safety hazard areas, and significant concentrations of hydrogen sulfide in oilfield areas, presently under way by various County departments, be continued.	**CONSISTENT.** The proposed Project would not interfere with countywide programs related to identification, mapping, and evaluation of geologic, fire, flood safety hazard areas, and hydrogen sulfide concentrations in oilfield areas. The programs would continue and would not be compromised due to implementation of the proposed Project.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Policy 2. Those hazardous areas, identified as unsuitable for human occupancy, are guided toward open space uses, such as agriculture, wildlife habitat, and limited recreation.	**CONSISTENT.** Although located mostly on lands designated for agriculture, the Project site does not exhibit any unusual risks or hazards and is not identified as unsuitable for human occupancy. Further, as discussed in Section 4.9, *Hazards and Hazardous Materials*, Section 4.14, *Public Services*, and 4.17, *Utilities and Service Systems,* of this Draft EIR—with the implementation of the mitigation measures—the proposed Project will comply with applicable building code requirements, fire code requirements, flood hazard regulations, and public health regulations, thereby avoiding the creation of any unusual hazards.
Implementation Measure A. All hazards (geologic, fire, and flood) should be considered whenever a Planning Commission or Board of Supervisor's action could involve the establishment of land use activity susceptible to such hazards.	**CONSISTENT.** See the analysis provided in: Section 4.7, *Geology and Soils*, of this Draft EIR, which discusses potential geologic hazards; Section 4.9, *Hazards and Hazardous Materials*, of this Draft EIR, which discusses potential impacts regarding hazardous materials, hazardous waste, airport operations, and emergency response and evacuation; Section 4.10, *Hydrology and Water Quality*, of this Draft EIR, which discusses potential flood hazards; and Section 4.18, *Wildfire*, of this Draft EIR, which discusses potential fire hazards as a result of proposed Project implementation. Consistent with this measure, this Draft EIR analyzes all hazards associated with the proposed Project and sets forth mitigation measures to reduce the significance of impacts related to hazards. Further, this Draft EIR will be presented to the Planning Commission and Board of Supervisors for consideration prior to making a decision on the proposed Project.
Implementation Measure F. The adopted multi-jurisdictional Kern County, California Multi- Hazard Mitigation Plan, as approved by FEMA, shall be used as a source document for preparation of environmental documents pursuant to CEQA, evaluation of project proposals, formulation of potential mitigation, and identification of specific actions that could, if implemented, mitigate impacts from future disasters and other threats to public safety.	**CONSISTENT.** As discussed in Section 4.9, *Hazards and Hazardous Materials*, and Section 4.18, *Wildfire*, of this Draft EIR, the analysis of potential impacts associated with hazards included consideration of project consistency with the Kern County Multi-Jurisdictional Hazard Mitigation Plan (MHMP). Consistent with the MHMP, the proposed Project would be subject to mitigation measures involving: the preparation and implementation of a hazardous materials business plan; limitations on the types of herbicides that may be used and conditions under which they may be used; and preparation of a fire safety plan that would be subject to the review and approval of the Kern County Fire Department. Further, the MHMP generally characterizes the County as highly susceptible to wildfires. Although the Project site is not located within a high fire hazard severity zone, construction and operational activities could increase the potential for wildland fires. Therefore, wildfire impacts would be potentially significant and the proposed Project would be subject to measures requiring the proposed Project proponent to prepare the fire safety plan described above, comply with Kern County Fire Codes, and limit use of fire sensitive electrical equipment.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
4.3: *SEISMICALLY INDUCED SURFACE RUPTURE, GROUND SHAKING, AND GROUND FAILURE*	
Policy 1. The County shall require development for human occupancy to be placed in a location away from an active earthquake fault in order to minimize safety concerns.	**CONSISTENT.** As described in Section 4.7, *Geology and Soils*, of this Draft EIR, the Project site is not transected by a known active or potentially active fault and is not located within a State of California Alquist-Priolo Earthquake Fault Zone. Further, development of the proposed Project would be required to comply with applicable ordinances of the Kern County Building Code and Mitigation Measure MM 4.7-1 which requires the Project proponent to conduct a final engineering design specific geotechnical study in accordance with applicable requirements of the Kern County Building Code and the California Building Code to evaluate, and design development to avoid or mitigate impacts associated with, hazardous soil conditions and geologic hazards.
Implementation Measure B. Require geological and soils engineering investigations in identified significant geologic hazard areas in accordance with the Kern County Code of Building Regulations.	**CONSISTENT.** See the analysis of project consistency with 4.3, Seismically Induced Surface Rupture, Ground Shaking, and Ground Failure, Policy 1, above.
Implementation Measure C. The fault zones designated in Kern County Seismic Hazard Atlas should be considered significant geologic hazard areas. Proper precautions should be instituted to reduce seismic hazard, whenever possible in accordance with State and County regulations.	**CONSISTENT.** See the analysis of project consistency with 4.3, Seismically Induced Surface Rupture, Ground Shaking, and Ground Failure, Policy 1, above.
4.5: *LANDSLIDES, SUBSIDENCE, SEICHE, AND LIQUEFACTION*	
Policy 1. Determine the liquefaction potential at sites in areas of shallow groundwater (Map Code 2.3) prior to discretionary development and determine specific mitigation to be incorporated into the foundation design, as necessary, to prevent or reduce damage from liquefaction in an earthquake.	**CONSISTENT.** Liquefaction potential is discussed in Section 4.7, *Geology and Soils*, of this Draft EIR. The Project proponent would be required to implement Mitigation Measure MM 4.7-1, which would require the Project proponent to submit an engineering design specific geotechnical study to the Kern County Public Works Department in order to obtain required grading permits. Mitigation Measure MM 4.7-1 would address potential soil stability impacts and prescribe specific design requirements to address potential hazards related to unstable soils and liquefaction. Therefore, with implementation of this mitigation measure, the proposed Project would be consistent with this goal to avoid impacts related to seismically induced liquefaction.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Policy 3. Reduce potential for exposure of residential, commercial, and industrial development to hazards of landslide, land subsidence, liquefaction, and erosion.	**CONSISTENT.** See 4.5, Landslides, Subsidence, Seiche, and Liquefaction, Policy 3, above. As discussed in Section 4.7, *Geology and Soils*, of this Draft EIR, the Project site has low probability for experiencing landslides given the relatively gradual inclines that characterize the site. Grading would be subject to compliance with the NPDES General Construction Permit requirements and site-specific measures would be incorporated into the SWPPP as required by Mitigation Masure MM 4.10-1 (Section 4.10, *Hydrology and Water Quality*, of this Draft EIR). The implementation of required BMPs would minimize erosion and/or loss of topsoil. Implementation of Mitigation Measure MM 4.7-1, which includes adherence to the requirements of applicable building codes and earthquake safe design standards, would ensure that effects from seismic-related ground failure including liquefaction would be minimized. Further, as discussed in Section 4.10, *Hydrology and Water Quality*, of this Draft EIR, the potential for erosion would be minimized with the implementation of Mitigation Measure MM 4.10-2, which requires the completion of a hydrologic study and final drainage plan for the proposed Project prior to the issuance of a grading permit. With the implementation of the mitigation measures, the proposed Project would not present any unusual or otherwise unacceptable risks associated with landslides, land subsidence, liquefaction, and/or erosion.
4.6: *WILDLAND AND URBAN FIRE*	
Policy 1. Require discretionary projects to assess impacts on emergency services and facilities.	**CONSISTENT.** As discussed in Section 4.14, *Public Services*, of this Draft EIR, the proposed Project would increase demand for response from the KCFD for fire protection and emergency services. The Project proponent would be required to implement Mitigation Measure MM 4.14-1 that requires the preparation and implementation of a fire safety plan that would contain notification procedures and emergency fire precautions consistent with the 2022 California Fire Code and Kern County Fire Code. Mitigation Measure MM 4.14-2 would require the Project proponent to pay a Kern County CIC to offset the proposed Project's pro rata demand for emergency services and facilities.
Policy 3. The County will encourage the promotion of fire prevention methods to reduce service protection costs and costs to taxpayers.	**CONSISTENT.** As discussed in Sections 4.9, *Hazards and Hazardous Materials*, 4.15, *Public Services*, and 4.20, *Wildfire*, of this Draft EIR, the Project proponent would be required to implement Mitigation Measure MM 4.14-1 which requires the preparation and implementation of a fire safety plan for use during construction and operational activities. All on-site employees would be trained on fire safety and how to respond to on-site fires, should they occur.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Policy 4. Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.	**CONSISTENT.** As discussed in Section 4.15, *Transportation*, of this Draft EIR, all project access points would be designed and constructed in compliance with applicable safety design standards set forth in the Kern County Development Standards, ensuring adequate access in the event of an emergency. In addition, pursuant to Mitigation Measure MM 4.15-1 the Project proponent would be required to prepare and implement a Traffic Control Plan that includes measures to ensure access for emergency vehicles to the Project site. The Project proponent also would develop and implement a fire safety plan for use during construction and operation, as required pursuant to Mitigation Measure MM 4.14-1.
Policy 6. All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.	**CONSISTENT.** As discussed in Section 4.14, *Public Services*, of this Draft EIR, the proposed Project would be subject to Mitigation Measure MM 4.14-1, which requires the Project proponent to develop a fire safety plan for use during construction and operational activities. The proposed Project would be required to comply with the adopted Fire Code and the requirements of the Kern County Fire Department.
Implementation Measure A. Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.	**CONSISTENT.** Consistent with this measure, the Project proponent would be required to implement Mitigation Measure MM 4.14-1, which would require preparation and implementation of a fire safety plan to ensure the provision of appropriate access. The Project proponent also would be required to implement Mitigation Measure MM 4.15-1, involving the preparation and implementation of a Construction Traffic Control Plan to ensure that adequate emergency access is maintained and control/coordinate vehicle trips during construction activities.
4.9: *HAZARDOUS MATERIALS*	
Policy 1. Monitor, enforce, and update, as appropriate, all emergency plans as needs and as conditions change.	**CONSISTENT.** The proposed Project would be required to adhere to all applicable emergency plans, as discussed in Section 4.9, *Hazards and Hazardous Materials*, Section 4.15, *Transportation*, and Section 4.18, *Wildfire,* of this Draft EIR.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Implementation Measure A. Facilities used to manufacture, store, and use of hazardous materials shall comply with the Uniform Fire Code, with requirements for siting or design to prevent on-site hazards from affecting surrounding communities in the event of inundation.	**CONSISTENT.** As described in Section 4.10, *Hydrology and Water Quality*, of this Draft EIR, the proposed Project would be subject to Mitigation Measure MM 4.10-2, which would require the Project proponent to prepare a hydrologic study and final drainage plan that include design measures to minimize or manage flow concentration and changes in flow depth or velocity so as to minimize the potential for flooding and inundation on-site or off-site. Additionally, as described in Section 4.9, *Hazards and Hazardous Materials,* of this Draft EIR, the proposed Project would be subject to Mitigation Measure MM 4.9-1, which requires the Project proponent to prepare, maintain, and implement (as needed) a hazardous materials business plan that sets forth procedures for the proper handling, storage, transport, and disposal techniques, as well as establish public and agency notification procedures for, spills and other emergencies.
4.10: *ABANDONED OPEN SHAFTS AND WELLS*	
Policy 1. The County should protect residents from the hazards of improperly abandoned mine shafts.	**CONSISTENT.** Based on the U.S. Geological Survey (USGS) Prospect and Mine Related Features dataset (May 2023), there are currently no existing mine shafts within the proposed Project footprint.
Policy 2. The County should protect residents from the hazards associated with development in areas where wells have been drilled and abandoned for exploration and/or production of oil and natural gas.	**CONSISTENT.** The proposed Project includes no-build setbacks of 10’ around existing oil and gas wells. Further, the abandonment of inactive wells (idle and plugged) must comply with the California Geologic Energy Management (CalGEM) Division-enforced regulations which are designed to protect public health, safety, and the environment.
Implementation Measure A. Work with State and federal governments to assure that existing mine shafts are properly abandoned and designated.	**CONSISTENT.** See the analysis of project consistency with 4.9, Abandoned Open Shafts and Wells, Policy 1, above.
Implementation Measure B. Support the construction site review program of the Department of Oil, Gas, and Geothermal Resources that assures wells are precisely located, properly plugged and abandoned, and tested for leakage prior to development of the area.	**CONSISTENT.** As described in Sections 4.12, *Mineral Resources*, and 4.9, *Hazardous and Hazardous Materials,* of this Draft EIR, several oil wells (plugged, cancelled, and idle) exist on Sites 1, 4, and 8. As described in the Phase I ESA, the risk for accidental spills related to any unplugged or idle wells is low. In the event that any currently unknown plugged or abandoned wells are discovered during ground disturbance, they must be abandoned pursuant to CalGEM Division-enforced regulations which are designed to protect public health, safety, and the environment.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
CHAPTER 5: *ENERGY ELEMENT*	
5.2: *IMPORTANCE OF ENERGY TO KERN COUNTY*	
Policy 8. The County should work closely with local, state, and federal agencies to assure that energy projects (both discretionary and ministerial) avoid or minimize direct impacts to fish, wildlife, and botanical resources, wherever practical.	**CONSISTENT.** See 1.10.5, Threatened and Endangered Species, Policy 28, above.
Policy 10. The County should require acoustical analysis for energy project proposals that might impact sensitive and highly-sensitive uses in accordance with the Noise Element of the General Plan.	**CONSISTENT.** See 3.3, Sensitive Noise Areas, Goal 1, above.
5.3.1: *URBAN/RESIDENTIAL DEVELOPMENT IN PETROLEUM RESOURCE AREAS*	
Goal 1. To protect oil resource areas from unnecessary urban/suburban encroachment, and in instances of urban/suburban development in oil resource areas, to provide for the development of petroleum resources in a manner compatible with the surrounding environment to minimize adverse impacts and protect health and safety.	**CONSISTENT.** A number of active oil and gas wells are located within the Project site. However, the proposed Project includes a 10-foot no-build setback around all existing oil and gas wells and provides drilling areas of suitable size and access from within the Project site. Additionally, Mitigation Measure MM 4.12-1 requires the Project proponent to provide documentation from any minerals right holders who agree to allow the placement of solar panels in areas that could affect their ability to exercise their mineral rights..
Policy 1. The County shall continue to assure adequate minimum setbacks between wells and from any existing structure, as permitted by the KCZO.	**CONSISTENT.** See the analysis of project consistency with 5, Energy Element, Goal 1, above.
5.3.2: *KERN COUNTY'S ECONOMIC DEPENDENCE ON THE OIL MARKETPLACE*	
Policy 3. The County shall encourage the conversion of existing petroleum-related facilities to other productive uses when they are no longer needed or productive.	**CONSISTENT.** As stated above, a number of abandoned oil and gas wells are located within the Project site. If in the event that any oil and/or gas wells are decommissioned, the proposed Project could be modified by expanding the solar facilities into the areas of the decommissioned oil and/or gas wells. Further, Mitigation Measure MM 4.12-1 requires the Project proponent to provide documentation from any minerals right holders who waive their surface access rights to allow development of the proposed Project.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Policy 4. The County should encourage the development of renewable energy industries to diversify the energy economy in Kern County.	**CONSISTENT.** The proposed Project includes the development of a solar facility and associated infrastructure with the capacity to generate up to 2 GW of electricity with a 2 GW BESS capable of storing approximately 16,000 megawatt-hours (MWh) or 16 gigawatt-hours (GWh) of energy on-site and discharging it to the grid on an as-needed basis.
5.4: *KERN COUNTY'S ECONOMIC DEPENDENCE ON THE OIL MARKETPLACE*	
5.4.5: *SOLAR ENERGY DEVELOPMENT*	
Goal 1. Encourage safe and orderly commercial solar development.	**CONSISTENT.** As stated above, the proposed Project requires the Kern County Board of Supervisors consideration of CUP applications to allow the proposed Project, thereby affording the Board of Supervisors discretionary approval authority over the proposed Project. The Board of Supervisors has the discretion to apply conditions of approval to avoid or minimize any hazards that the proposed Project presents, and protect the public health, safety, and welfare, in order to make the findings to approve the CUPs and allow the proposed Project to occur. Further, as described above and throughout this Draft EIR, the proposed Project will result in several potentially significant impacts to environmental resources and impacts regarding hazards and public health. Where feasible, this Draft EIR identifies mitigation measures that can be included as conditions of approval, to address the impacts. If the impacts cannot be reduced to an insignificant level, the Board of Supervisors must adopt a Statement of Overriding Considerations that sets forth the public benefits of the proposed Project that outweigh the adverse effects of the proposed Project. Implementation of these procedures will ensure that the proposed Project proceeds in a safe and orderly manner.
Policy 1. The County shall encourage domestic and commercial solar energy uses to conserve fossil fuel and improve air quality.	**CONSISTENT.** The proposed Project involves the construction, operation, and decommissioning of a commercial-scale solar facility with the capacity to generate up to 2GW of electricity through solar power. The proposed 2 GW BESS would be capable of storing approximately 16,000 megawatt-hours (MWh) or 16 gigawatt-hours (GWh) of energy on-site and discharging it to the grid on an as-needed basis. As PG&E moves toward decarbonizing its power sources in accordance with SB 100, the proposed Project would support the need for renewable electricity.
Policy 2. The County should attempt to identify and remove disincentives to domestic and commercial solar energy development.	**CONSISTENT.** The proposed Project does create disincentives to solar energy development. On the contrary, the proposed Project advances solar energy development within the County with the installation of a commercial-scale solar facility with the capacity to generate up to 2 GW of electricity through solar power.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Policy 3. The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.	**CONSISTENT.** The proposed Project is located in the valley region of Kern County and has gentle slopes between one and three percent. The proposed Project is not located within hazardous areas that would cause significant public health and safety hazards, as discussed in Section 4.7, *Geology and Soils* and 4.9, *Hazards and Hazardous Materials*.
Policy 4. The County should encourage solar development in the desert and valley regions previously disturbed, and discourage development of energy projects on undisturbed land supporting State or federally protected plant and wildlife species.	**CONSISTENT.** The Project site historically has been utilized for agricultural production. The Project site is not located (either partially or entirely) within an ecological reserve (for example, Buttonwillow Ecological Reserve). However, portions of Sites 5 and 6 are located adjacent to the Buttonwillow Ecological Reserve; a portion of Site 3 is located adjacent to the Lokern Ecological Reserve; and Site 4 is located across (east of) Interstate 5 from the Lokern Ecological Reserve. As described above in 1.10.5, Threatened and Endangered Species, Policies 27, 28, and 29, the proposed Project would be subject to a number of mitigation measures to avoid or reduce to a less than significant level, impacts to State and/or federally protected plant and wildlife species that are either known, or have moderate to high potential, to exist within undisturbed lands on and adjacent to the Project site.
5.4.7: *TRANSMISSION LINES*	
Goal 1. To encourage the safe and orderly development of transmission lines to access Kern County's electrical resources along routes, which minimize potential adverse environmental effects.	**CONSISTENT.** Final review of the proposed Project by the Kern County Planning and Natural Resources Department, as well as adherence to all applicable local, state, and federal regulations, would ensure that the transmission lines would not pose significant environmental or public health and safety hazards. The gen-tie line would be sited within Kern County or Caltrans public Right-of-Way and was analyzed throughout this Draft EIR.
Policy 5. The County should discourage the siting of above-ground transmission lines in visually sensitive areas.	**CONSISTENT.** The proposed Project includes the routing of a new gen-tie line, of which would be either underground or above-ground. As discussed in Section 4.1, *Aesthetics*, the proposed Project is not located within a visually sensitive area.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
Buttonwillow Community Development Specific Plan	
LAND USE ELEMENT	
OPEN SPACE	
RECOMMENDATIONS	
All transmission line easements shall be maintained as open space areas.	**CONSISTENT.** The Kern County Planning and Natural Resources Department would maintain all transmission line easements open and clear of obstructions pursuant to standard conditions of approval.
IMPLEMENTATION MEASURES	
Encourage continuing dual use of transmission line easements as open space or possibly greenbelt areas.	**CONSISTENT.** The community of Buttonwillow does not have any planned or existing greenbelt areas, and the proposed Project would not preclude future development, as the Kern County Planning and Natural Resources would maintain ownership of any easements within the public Right-of-Way.
Continuance of land use contracts under the provisions of the Williamson Act and maintenance of the A (Exclusive Agricultural) zoning classification for agricultural lands.	**INCONSISTENT.** The proposed Project would include the cancellation of WALUC. Specifically, the cancellation of 1,300 acres within Site 1, which is near the Community of Buttonwillow.
AGRICULTURE	
RECOMMENDATIONS	
All lands with intensive agricultural capabilities or lands being used for agricultural purposes should be precisely zoned with an agricultural designation.	**Consistent.** The solar photovoltaic (PV) and battery energy storage facility are allowed within the A Zone District with the approval of a discretionary Conditional Use Permit.
IMPLEMENTATION MEASURES	
Encourage continuance of land use contracts under the provisions of the California Land Conservation Act of 1965, as amended, and commonly referred to as "The Williamson Act."	**INCONSISTENT.** The proposed Project would include the cancellation of WALUC. Specifically, the cancellation of 1,300 acres within Site 1, which is near the Community of Buttonwillow.

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
CONSERVATION ELEMENT	
RECOMMENDATIONS	
Possible water contamination shall be avoided by requiring suitable size lots, depending on soils, for development not providing sewage treatment facilities.	**CONSISTENT.** Once constructed, the proposed Project would require 20 Full Time Employees to operate and maintain the solar photovoltaic (PV) and battery energy storage facility. The proposed Project includes on-site septic tank and leach fields that are consistent with Kern County Public Health Department standards at each O&M building to properly dispose of sanitary wastewater.
IMPLEMENTATION MEASURES	
Encourage development of an overall water use plan for Kern County, in conjunction with the Kern County Water Agency, and all water districts and city agencies, to establish maximum benefits from the limited water resources.	**CONSISTENT.** This Draft EIR evaluated environmental impacts regarding water supply and was informed by a Water Supply Assessment and groundwater and Sustainable Groundwater Management Act (Appendix I.2).
6. Fish and Wildlife	
RECOMMENDATIONS	
Blunt-nosed Leopard Lizard: The extent and status of existing populations should be determined.	**CONSISTENT.** See 1.10.05 Threatened and Endangered Species, Policy 27, of the Kern County General Plan, above.
IMPLEMENTATION MEASURES	
Encourage programs to locate and determine populations of rare and endangered species.	**CONSISTENT.** See 1.10.05 Threatened and Endangered Species, Policy 27, of the Kern County General Plan, above.
Encourage establishment of wildlife refuges and habitats for rare and endangered species.	**CONSISTENT.** The proposed Project does not preclude the establishment of such refuges**.**

Table 4.11-3: Project Consistency with Local Planning Documents

Goals and Policies	Project Consistency
OPEN SPACE ELEMENT	
E. AIR POLLUTION HAZARD	
RECOMMENDATIONS	
It is the recommendation of the Air Quality Control Section that the proposed development(s) proceed with only minimal disruption of the native soil surface within the project area. Removal of native grasses and/or disruption of native soils will tend to increase the discharge of fugitive dust into the atmosphere.	**CONSISTENT.** As discussed in Section 4.3, *Air Quality*, the proposed Project would implement Mitigation Measure MM 4.3-2, which requires a Site-Specific Dust Control Plan for review and approval by the Kern County Planning and Natural Resources Department.
It is also recommended that sufficient dust control measures be provided during any construction activity in order to control fugitive dust.	**CONSISTENT.** See E. Air Pollution Hazard, Recommendation, above.
It is further recommended that all roads within the project area be paved.	**CONSISTENT.** All access roads and any off-site roadway improvements would adhere to Caltrans and/or Kern County codes and regulations. Internal roads would be compacted.
IMPLEMENTATION MEASURES	
Encourage reseeding of disturbed soils.	**CONSISTENT.** As discussed in Section 4.1, *Aesthetics,* Mitigation Measure MM 4.1-4 requires a Landscape Revegetation and Restoration Plan for the project site and requires ground surface to be revegetated with a native seed mix or native plants.
Encourage use of pesticides and herbicides only on days when wind conditions are such that contamination will not affect the community.	**CONSISTENT.** As discussed in Section 4.9, *Hazards and Hazardous Materials*, the proposed Project would be required to apply herbicides only by a local herbicide applicator who is licensed and prohibits herbicide application when wind velocity exceeds 10 miles per hour.

Section 4.12

Mineral Resources

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Section 4.12
Mineral Resources

4.12.1 Introduction

This section of the Draft Environmental Impact Report (EIR) describes the affected environment and regulatory setting for mineral resources. It also describes the impacts on mineral resources that would result from the implementation of the proposed Buttonbush Solar and Storage Project (proposed Project) and the mitigation measures that would reduce these impacts, where necessary.

This section is informed by the California Department of Conservation (DOC) California Geological Survey (CGS), California Geologic Energy Management Division (CalGEM) (previously known as the California Division of Oil, Gas, and Geothermal Resources), and Kern County publications and maps as cited throughout this section.

4.12.2 Environmental Setting

Public policy requires protection of access to important mineral resources and evaluation and mitigation of a project's impacts regarding access to such resources. Management of these mineral resources protects not only future development of mineral deposit areas but also limits the exploitation of mineral deposits so that adverse impacts caused by mineral extraction can be avoided or reduced. This section discusses the existing conditions related to mineral resources within the vicinity of, and at, the Project site.

Regional Setting

Mineral and petroleum resources are integral to Kern County's economy; Kern County produces more oil than any other county in California (Kern Economic Development Foundation 2021). In addition, Kern County produces borax, cement, and construction aggregates, which constitute major economic mineral resources.

The Surface Mining and Reclamation Act of 1975 (SMARA) requires the State Geologist to classify land into Mineral Resource Zones (MRZs) according to its known or inferred mineral potential. The State Geologist has analyzed and classified 2,971 square miles of land in Kern County to determine the location of MRZs throughout the county. The MRZ categories are defined below (CGS 2009).

- **MRZ-1:** Areas where adequate geologic information indicates that no significant mineral deposits are present, or where available geologic information indicates that little likelihood exists for the presence of significant mineral resources.
- **MRZ-2:** Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists. This zone is applied

to known mineral deposits or where well-developed lines of reasoning based upon economic-geologic principles and adequate data demonstrate that the likelihood for occurrence of significant mineral deposits is high.

  - **MRZ-2a:** Areas underlain by mineral deposits where geologic data indicate that significant measured or indicated resources are present. Areas classified MRZ-2a contain discovered mineral deposits that are either measured or indicated reserves. Land included in MRZ-2a is of prime importance because it contains known economic mineral deposits.
  - **MRZ-2b:** Areas underlain by mineral deposits where geologic information indicates that significant inferred resources are present. Areas classified MRZ-2b contain inferred mineral resources as determined by their lateral extension from proven deposits or their similarity to proven deposits. Further exploration could result in upgrading areas classified MRZ-2b to MRZ-2a.

- **MRZ-3:** Areas containing known or inferred mineral occurrences of undetermined mineral resource significance.
  - **MRZ-3a:** Areas containing known mineral occurrences of undetermined economic significance. Further exploration could result in reclassification of all or part of these areas into the MRZ-2a or MRZ-2b categories.
  - **MRZ-3b:** Areas containing inferred mineral occurrences of undetermined economic significance. Further exploration could result in the reclassification of all or part of these areas into the MRZ-2a or MRZ-2b categories.
- **MRZ-4:** Areas containing no known mineral occurrence.

Table 4.12-1: *Classified Mineral Resources within Kern County*, lists the classified mineral resources within Kern County that are part of the MRZ-2 group and, therefore, have a demonstrated mineral significance (as opposed to the MRZ-3 group, which has an undetermined mineral significance).

Table 4.12-1. Classified Mineral Resources within Kern County

Mineral Resource	MRZ Classification	Number of Areas	Total Acreage
Borates	MRZ-2a and 2b	2	2,564
Limestone	MRZ-2a	4	2,008
Limestone	MRZ-2b	2	157
Silica	MRZ-2a	1	119
Pozzolan (essential cement additive)	MRZ-2b	1	72
Gold	MRZ-2a	3	849
Gold	MRZ-2b	8	6,619
Dimension Stone	MRZ-2a	2	527

Source: CGS 1999

Key: MRZ = Mineral Resource Zones

Petroleum Resources

As noted above, Kern County produces more oil than any other county in California. In 2019, Kern County was the leading oil producing county in the state, and the seventh largest in the country. Kern County's Elk Hills oilfield is the state's top natural gas producer. The Project site is located less than 10 miles from this oilfield. The Project site is located on or near the Bowerbank and Jerry Slough oil fields and Buttonwillow gas field. Two other fields, South Belridge and Lost Hills, rank in the state's top five for gas production. The valley floor area of Kern County and the surrounding lower elevations of the mountain ranges contain numerous deposits of oil and gas resources, a major economic resource for the county.

Mineral and petroleum resources play a vital role to Kern County's economy and job market. With new extraction technologies, petroleum is expected to remain important, even as California promotes renewable energy. Oil and gas production continue to be considered crucial both statewide and nationally (Kern County 2015).

Sand and Gravel

Construction aggregates are a major economic mineral resource for Kern County. Sand and gravel have been determined to be important resources for construction, development, and physical maintenance, from highways and bridges to swimming pools and playgrounds. The availability of sand and gravel affects construction costs, tax rates, and affordability of housing and commodities. The State of California has statutorily required the protection of sand and gravel operations. Because transportation costs are a significant portion of the cost of sand and gravel, the long-term availability of local sources of this resource is an important factor in maintaining the economic attractiveness of a community to residents, business, and industry. The major resources of sand and gravel in Kern County are in stream deposits along the eastern side of the San Joaquin Valley and in the Sierra Nevada foothills, approximately 44 miles northeast of the Project site, and in alluvial fan deposits along the Tehachapi Mountains at the southern end of Kern County, approximately 43 miles southeast of the Project site.

Borax

As discussed in the Land Use, Open Space, and Conservation Element of the Kern County General Plan (KCGP; Kern County 2009), borax constitutes a major economic mineral resource for Kern County in eastern Kern County. Borax, a borate mineral (a compound that contains boron and oxygen), was discovered and put into production in 1872 in Nevada and later, in 1881, in Death Valley. The discovery of borates in the Kramer District was accidental, when a water well penetrated lakebeds containing colemanite (calcium borate) in 1913. In 1927, underground mining of the minerals kernite and borax began and continued until 1957, when underground operations ceased and open-pit mining began, eventually becoming the largest open-pit mine in California. Annually more than 1.8 million tons are removed from this mine, which supplies about 40% of the world's supply of borates. There are several other sources of borate minerals in Kern County.

Limestone

Carbonate rocks were initially quarried in 1888 as a source of lime. By 1909, the limestone resources were used for the manufacture of Portland cement during the construction of the first Los Angeles aqueduct. Limestone has been mined continuously since 1921, just northeast of Tehachapi. The Tehachapi Plant was joined by California Portland (Cal Portland) Cement Company's Mojave Plant in 1954. The County's limestone resources are in roof pendants of metamorphosed marine sedimentary rocks scattered in intrusive rocks ranging in composition from granite to gabbro. Most of the pendants are located in the eastern portion of the county, which is underlain primarily by granitic rock of the Sierra Nevada batholith. Removal of limestone in the county is exclusively by open-pit methods.

Precious Minerals

In terms of total dollar value and number of deposits, gold is the most important metallic mineral commodity that has been mined in Kern County. The first lode mining was in 1852 near Lake Isabella, then in 1894 gold was discovered south of Mojave and at Randsburg in 1895. These two districts have yielded almost half of the total production of gold in the county. Gold was first prospected in eastern Kern in the 1860s, with the two largest mines being established in the 1890s. The Yellow Aster and Golden Queen mines located in eastern Kern have yielded almost half of the total gold output of the county. The principal sources of silver in Kern County have been deposits in eastern Kern County as a by-product of gold ore. Although gold is the chief mineral in value, silver is predominant by a 5:1 ratio and is an important by-product of the gold ore (CGS 1999).

Dimension Stone

Dimension stone is natural rock materials quarried for the purpose of obtaining blocks or slabs that meet specifications of size (width, length, and thickness) and shape. Color grain texture and pattern, and surface finish, durability, strength, and polish ability are important selection criteria in determining dimension stone. Deposits of marble, sandstone, schist, and other rocks in Kern County have been sources of modest tonnages of building stone that have been used as dimension stone, field stone, rubble, and flagstone. Most of the dimension stone (marble and flagstone) was mined until 1904; field stone and flagstone have been mined mostly since about 1952 in the area around Randsburg (CGS 1999).

Other Mineral Resources

According to the KCGP EIR, other mineral resources within the county include uranium, gypsum, antimony, copper, and tungsten. Uranium deposits in the county are in (a) fine-grained marine sedimentary rocks, of Miocene age in the Temblor Range, (b) Mesozoic granitic rocks in the Sierra Nevada, and (c) Tertiary volcanic rocks and non-marine sedimentary rocks near the unincorporated community of Rosamond.

Several hundred thousand tons of gypsum are used annually in the county as a soil conditioner in alkaline soils. Gypsum mined in the county is found in the form of gypsite and gypsum. Gypsite deposits are primarily located in the San Joaquin Valley near Lost Hills and Kern Lake Bed and in the Temblor Range foothills near the unincorporated community of McKittrick.

Antimony deposits are found in several locations within the county, with the major source at Antimony Peak. Significant quantities of copper exist in the area of the unincorporated community of Woody. Copper mines also exist in the El Paso Mountains and the Rademacher Hills area. Tungsten is found in various locations in the eastern part of the county, with most of the mines located in the Sierra Nevada and Rand Mining District near the border of Kern County and San Bernardino County line. Minerals of lesser importance found in the county include arsenic, asbestos, barite, bismuth, coal and peat, diatomaceous earth, fluorspar, several lesser valued minerals, graphite, iron, lead, lithium, magnesite, manganese, mercury, molybdenum, perite, pumice and pumicite, quartz and feldspar, salt, talc, thorium, tin, wollastonite, and zinc.

Local Setting

The Project site is located within an unincorporated area within Kern County, north and east of the community of Buttonwillow, approximately two miles west of the City of Shafter, and approximately seven miles southwest of the City of Wasco. Specifically, the proposed Project straddles and crosses Interstate 5 and is east of Buttonwillow Raceway Park, north of State Route 58, and south of Kimberlina Road. The Project site is located primarily on flat terrain, currently either used for agricultural operations and/or vacant undisturbed land designated for agricultural use. Existing land uses in the vicinity of the Project site generally include active agricultural, a dairy, scattered rural residences, undeveloped lands, access roadways, and utility lines. According to the Kern County Interactive County Map (GIS Tool) and the Department of Conservation, the Project site is not located on lands classified as MRZ-1 or MRZ-2 (Kern County 2025; DOC 2025).

Petroleum Resources

As illustrated in **Figure 4.12-1:** *Oil and Gas Well Locations*, there are multiple oil and gas wells (plugged, cancelled, and one idle) located within the Project site, and mineral rights holders that currently have active rights to mineral resources on several of the Tax Assessor's Parcels located within the Project site. A plugged hole well is an exploratory or development well found to be incapable of producing either oil or gas in sufficient quantities to justify completion as an oil or gas well. Buried oil infrastructure such as pipelines or well-heads may be present, in addition to possible buried oil production waste including spills and mud pits (Appendix G). The KCGP does not designate "mineral recovery areas." However, the plan identifies areas of importance for mineral exploration as Map Code 8.4 – Mineral and Petroleum. Several parcels within the Project site located within Site 1 and Site 8 are designated Map Code 8.4 – Mineral and Petroleum by the KCGP, as presented in Chapter 3, *Project Description* As discussed in Section 4.11, *Land Use and Planning*, the entire Project site is located within the Exclusive Agriculture (A) zone.

Aggregate Mines

As indicated above, several parcels within the Project site are designated Map Code 8.4 – Mineral and Petroleum by the KCGP. According to a database search of active mines listed in the California DOC, Division of Mine Reclamation (DMR) database, there are no active or newly permitted (and presumed to be active in the near future) aggregate materials mines in the Project site (DMR 2024). The nearest mapped mine is approximately 4.85 miles south of Site 1 and is an open pit with a

primary product of sand and gravel. **Table 4.12-2:** *Miles Within the Project Vicinity*, includes other active mines within the project vicinity and are primarily located south and west of the Project site.

Table 4.12-2. Mines Within the Project Vicinity

Mine Title	Status	Commodity	Distance[1]
Syndex Ready Mix (State Mine ID: 91-15-0104) (formally known as Buttonwillow Compaction)	Active/Open Pit	Sand and gravel	4.85 miles south
Cooper Pit #1 (State Mine ID: 91-15-0036)	Active/Open Pit	Diatomite	19.61 miles southwest
Cooper Pit #2 (State Mine ID: 91-15-0038)	Active/Open Pit	Diatomite	21.34 miles southwest

Source: DOC 2016

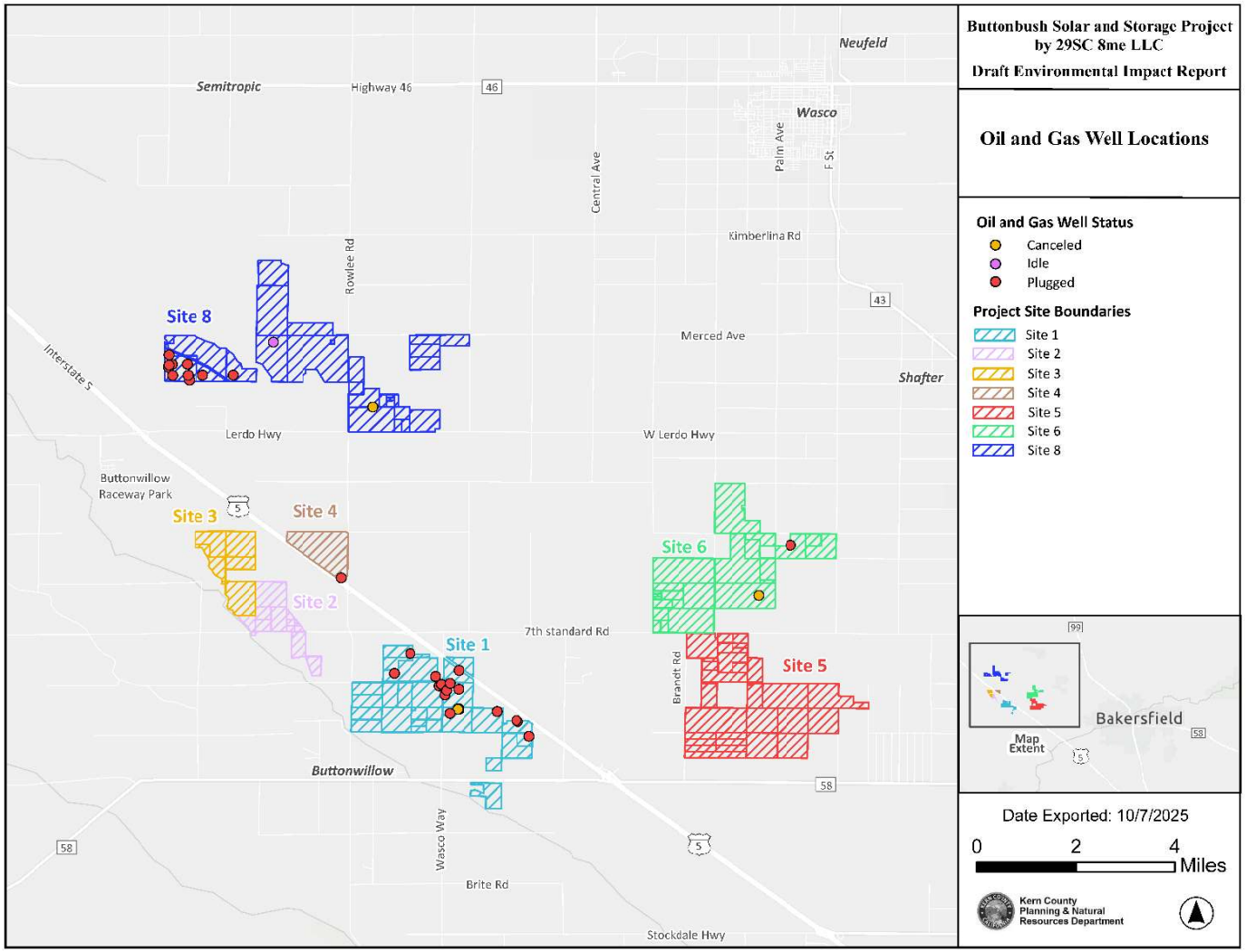
Note:

[1] Distance measured in miles from southwest corner of Site 1

Other Mineral Resources

According to a search of the DMR database, there are no active mines within the Project site producing either shale, diatomite, clay, or gypsum (DMR 2024).

Figure 4.12-1: Oil and Gas Well Locations



4.12.3 Regulatory Setting

Federal

There are no applicable federal regulations for this issue area.

State

Surface Mining and Reclamation Act of 1975—State Mining and Geology Board

SMARA protects access to important minerals and regulates surface mining operations to assure that adverse environmental impacts are minimized, and that mined lands are reclaimed to a usable condition. SMARA encourages the production, conservation, and protection of the state's mineral resources, and recognizes that "the state's mineral resources are vital, finite, and important natural resources and the responsible protection and development of these mineral resources is vital to a sustainable California" (Public Resources Code, Section 2711). As discussed in the *Regional Setting* section, above, SMARA requires the State Geologist to classify land into MRZs according to its known or inferred mineral potential. The primary goal of mineral land classification is to ensure that local agencies use the classification information when developing land-use plans and when making land-use decisions that could preclude mining.

California Department of Conservation Geologic Energy Management Division

CalGEM is a state agency responsible for supervising the drilling, operation, maintenance, plugging, and abandonment of oil, gas, and geothermal wells. CalGEM's regulatory program promotes the development of oil, natural gas, and geothermal resources in California through sound engineering practices, prevention of pollution, and implementation of public safety programs. To implement this regulatory program, CalGEM requires avoidance of building over or near plugged or abandoned oil and gas wells or requires the remediation of wells to current CalGEM standards. CalGEM oversees well operations and regulates the production of oil and gas, as well as geothermal resources, within the State of California, pursuant to California Code of Regulations, Title 14, Division 2, Chapter 4, which includes well design and construction standards, surface production equipment and pipeline requirements, and well abandonment procedures and guidelines.

Local

Kern County General Plan

The Project site is located within the jurisdictional boundaries of the KCGP and, therefore, would be subject to applicable policies and measures of the KCGP. The Land Use, Conservation, and Open Space Element and the Energy Element of the KCGP includes goals, policies, and implementation measures related to mineral resources that apply to the proposed Project, which are provided below.

Mineral and petroleum resources are foundational to Kern County's economy, and the KCGP identifies areas which contain producing or potentially productive petroleum fields, natural gas, and mineral deposits of regional and statewide significance. The KCGP delineates these areas under Map Code 8.4 (Mineral and Petroleum), in which nine parcels within Sites 1 and 8, are designated Map Code 8.4—Mineral and Petroleum by the KCGP. (See Chapter 3, *Project Description.*) Site 1 contains 425.06 acres and Site 8 contains 84.55 acres of land designated Map Code 8.4. As indicated in Section 1.9 of the KCGP, the "mineral and petroleum" land use designation is applied to:

> ...[A]*reas which contain producing or potentially productive petroleum fields, natural gas, and geothermal resources, and mineral deposits of regional and Statewide significance. Uses are limited to activities directly associated with the resource extraction. Uses shall include, but are not limited to, the following: Mineral and petroleum exploration and extraction, including aggregate extraction; extensive and intensive agriculture; mineral and petroleum processing (excluding petroleum refining); natural gas and geothermal resources; pipelines; power transmission facilities; communication facilities; equipment storage yards; and borrow pits.*

Chapter 1. Land Use, Conservation, and Open Space Element

1.9. Resource

Goals

Goal 1. To contain new development within an area large enough to meet generous protections of foreseeable need, but in locations that will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources or diminish the other amenities that exist in the County.

Goal 2. To protect areas of important mineral, petroleum, and agricultural resource potential for future use.

Goal 3. To ensure the development of resource areas to minimize effects on neighboring resource lands.

Goal 6. To encourage alternative sources of energy, such as solar and wind energy, while protecting the environment.

Policies

Policy 1. Appropriate resource uses of all types will be encouraged as desirable and consistent interim uses in undeveloped portions of the County regardless of General Plan designation.

Policy 14. Emphasize conservation and development of identified mineral deposits.

Policy 17. Lands classified as MRZ-2, as designated by the State of California, should be protected from encroachment of incompatible land uses.

Policy 25. Discourage incompatible land use adjacent to Map Code 8.4 Mineral and Petroleum areas.

Implementation Measures

Implementation Measure H. Use the CGS's latest maps to locate mineral deposits until the regional and Statewide importance mineral deposits map has been completed, as required by the Surface Mining and Reclamation Act.

Implementation Measure I. Periodically review the Zoning Ordinance to reflect new technology and energy sources and encourage these types of uses for new development.

Measure K. Protect oilfields and mineral extraction areas through the use of appropriate implementing zone districts: A (Exclusive Agriculture), DI (Drilling Island), NR (Natural Resource), or PE (Petroleum Extraction).

Buttonwillow Community Development Specific Plan (Specific Plan)The Specific Plan was prepared in 1974 and is a comprehensive policy document to guide future development and assist in the implementation of the KCGP. Site 1 of the Project site is located within the jurisdictional boundaries of the Specific Plan and, therefore, would be subject to applicable policies and measures. The Open Space element generally includes recommendations and implementation measures related to mineral resources. The Specific Plan states that there are no mineral resources within the plan area and further clarifies that petroleum fields do exist to the west of the aera. There are no recommendations or implementation measures listed in the Specific Plan that would apply to the proposed Project.

4.12.4 Impacts and Mitigation Measures

Methodology

Potential impacts of the proposed Project on mineral resources have been evaluated using a variety of sources, including a review of information from the California DOC, CGS, and Kern County publications and maps. Based on these resources and professional judgment, impacts were analyzed according to California Environmental Quality Act (CEQA) significance criteria described in this subsection.

A list of references cited is provided at the end of this resource section.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the CEQA Guidelines, to determine if a project could potentially have a significant adverse effect on mineral resources.

A project could have a significant adverse effect on mineral resources if it would:

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; or
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land-use plan.

Project Impacts

Impact 4.12-1: Would the Project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

The Project site is not located on lands classified by the State Geologist as MRZ-1 or MRZ-2. No mines are active within the Project site. As identified above, the nearest active mine to the Project site is an open pit with a primary product of sand and gravel, approximately 4.85 miles southwest of the site. Given this distance, the proposed Project would not interfere with nearby mine sites and would not result in the loss of land designated for mineral resources.

However, as discussed previously, nine parcels located within Sites 1 and 8 in the northern and southern portions of the Project site, are designated Map Code 8.4 – Mineral and Petroleum by the KCGP within the Project site. (See Chapter 3, *Project Description.*) Site 1 contains 425.06 acres and Site 8 contains 84.55 acres of land designated Map Code 8.4. Additionally, as noted above, there are multiple oil and gas wells located within the Project site and mineral rights holders that currently have active rights to mineral resources on several of the Tax Assessor's Parcels located within the Project site. Installation of solar panels and supporting infrastructure could impede access to oil resources as well as aggregate extraction or impede potential related operations in adjacent areas, which is considered a potentially significant impact.

Implementation of Mitigation Measure MM 4.12-1 requires the Project proponent to provide documentation from any mineral rights holders to demonstrate that they agree to allow proposed development activities on lands subject to their mineral rights. In addition, the proposed Project would include a 10-foot, no-build setback around oil and gas wells and provide drilling areas of suitable size and access for holders of rights to minerals that are accessible from within the Project site. In doing so, portions of the proposed Project would be undeveloped to allow for drilling areas to enable the economically feasible extraction and exploration of oil and gas as well as aggregate resources. For these reasons and with the implementation of Mitigation Measure MM 4.12-1, the proposed Project would not result in the loss of availability of a known mineral resource and the potential impact to mineral resources is less than significant.

PG&E Midway Substation Upgrades

The proposed Project includes enlarging the Midway Substation's 500-kilovolt (kV) yard within the Pacific Gas & Electric (PG&E)-owned Midway Substation property boundaries. The Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities as part of the proposed Project. PG&E may install two four-inch

fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership. It is anticipated that the first conduit path will exit the existing PG&E Midway Substation near the northwest corner of the fence corner, continue west for approximately 300 feet before turning north for approximately 1,400 feet, and then terminate at the Point of Change of Ownership. It is anticipated that the second conduit path will emerge from the substation out of the north fence approximately 160 feet from the northwest corner of the substation, route north for approximately 60 feet before heading west for approximately 500 feet, then turn north for approximately 1,400 feet, and then terminate at the proposed Project Point of Change of Ownership. Minor route modifications may be required at the time of construction due to unanticipated constraints. PG&E will install up to nine underground substructure vaults along the conduit trenches to support pulling the cable, housing excess cable storage, and supporting cable splice locations if required. The approximately 3-foot by 5-foot by 4.5-foot vaults will be installed along each conduit path between the Midway Substation and the Point of Change of Ownership. The trench will be backfilled with a layer of fluidized thermal concrete (red in color) with another layer of a diggable low PSI fluidized thermal backfill.

In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the Point of Change of Ownership for the proposed Project. Up to four approximately 175-foot-tall lattice steel towers or tubular steel poles would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads. For a detailed description of the Midway Substation upgrades see Section 3.0, *Project Description.*

Proposed Project construction, grading, and excavation activities within the Midway Substation parcels have the potential to restrict access to minerals considered of value to Kern County. To avoid potential impacts to minerals, PG&E should implement Mitigation Measure 4.12-1 for the parcels located within the Midway Substation boundary, which would ensure surface access to minerals rights holders.

Summary

With implementation of Mitigation Measures MM 4.12-1, proposed Project impacts regarding mineral resources would be less than significant.

Mitigation Measures

MM 4.12-1: Prior to issuance of any grading or building permit, excluding the generation tie line, the project proponent shall provide the following documentation regarding the mineral rights holders who also have right of surface access and drilling areas:

a. Written authorization, in a separate document outside any agreement, from the mineral right holder that they agree to development activities on the specific parcel containing their respective mineral rights. The letter shall include the

specific Assessor's Parcel Number of the property and name of the mineral rights holders, and any agreements for size and location of drilling areas.

b. The site plan showing the unbuildable drilling areas provided for the mineral holders with clear notation that no use of the area can be made for the life of the project except for exploration and extraction of oil and gas with permits without purchase and ownership of full mineral rights. No construction storage or laydown area may be established at any time in the drilling areas unless permitted through an individual agreement. All drilling areas located inside the project fence shall be enclosed within a separate fence and provided legal access across the site, and a 40-foot-long gate provided or as detailed by the individual agreement or;

c. For all mineral rights holders that do not have an individual agreement and have right of surface access, a drilling area sufficient to provide access to their minerals shall be shown on the final site plan and acknowledged in all grading plans.

d. If the project proponent is unable to locate existing mineral rights holders, the Planning & Natural Resources Department Director may allow implementation of the project to move forward without the required mineral rights holder authorization provided sufficient documentation has been submitted that outlines the efforts undertaken to locate all mineral rights holders. The authorization by the Planning Director shall be made in writing.

Level of Significance after Mitigation

Less than significant.

Impact 4.12-2: Would the Project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land-use plan?

As discussed above, the KCGP does not designate "mineral recovery areas," and instead maps mineral resource areas as Map Code 8.4 – Mineral and Petroleum. Nine parcels located within Sites 1 and 8 in the northern and southern portions of the Project site, are designated Map Code 8.4—Mineral and Petroleum by the KCGP within the Project site. (See Chapter 3, *Project Description*) Site 1 contains 425.06 acres and Site 8 contains 84.55 acres of land designated Map Code 8.4. Additionally, there are multiple oil and gas wells (plugged, cancelled, and one idle) located within the Project site and mineral rights holders that currently have active rights to mineral resources on several of the Tax Assessor's Parcels located within the Project site. The installation of photovoltaic panels, battery energy storage systems, substations, gen-tie lines, and other project infrastructure could preclude potential on-site mineral resource development for oil and gas, which is considered to be a potentially significant impact.

As stated above, the proposed Project would include a 10-foot, no-build setback around the existing oil and gas wells for inspection and maintenance purposes. Furthermore, portions of the Project site

along with access to said areas would be left undeveloped as drilling areas available to mineral rights holders from within the Project site. Furthermore, Mitigation Measure MM 4.12-1 requires the Project proponent to provide documentation from any minerals right holders who agree to allow placement of solar panels within areas that might affect their ability to exercise their mineral rights (for example, impede future drill sites). With implementation of Mitigation Measure MM 4.12-1, the potential loss of mineral resources for oil and gas would be less than significant.

PG&E Midway Substation Upgrades

As discussed above, construction, grading, and excavation activities within the Midway Substation parcels have the potential to restrict access to minerals considered of value to Kern County. To avoid potential impacts to minerals, PG&E should implement Mitigation Measure 4.12-1 for the parcels located within the Midway Substation boundary, which would ensure surface access to minerals rights holders.

Summary

With implementation of Mitigation Measures MM 4.12-1, proposed Project impacts regarding mineral resources would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.12-1, as described above.

Level of Significance after Mitigation

Less than significant.

4.12.5 Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

There are 25 projects within a 6-mile radius of the Project site, as shown in **Table 3-4:** *Cumulative Projects*, in Chapter 3, *Project Description*. The geographic scope of impacts associated with mineral resources generally encompasses the Project site and a 0.25-mile radius around the Project site. As shown in **Figure 3-12:** *Cumulative Projects*, in Chapter 3, four projects are within a 1-mile radius of the Project site. This analysis only includes these four projects because of the localized and confined characteristics of mineral resources and associated impacts.

There are multiple oil and gas wells located within the Project site and two mineral rights holders that currently have active rights to mineral resources on several of the Tax Assessor's Parcels located within the Project site.

The proposed Project would include a 10-foot, no-build setback around the oil and gas wells. Additionally, portions of the Project site along with access to said areas would be left undeveloped and therefore, would make drilling areas available to mineral rights holders. Furthermore, Mitigation Measure MM 4.12-1 requires the Project proponent to provide documentation from any

minerals right holders who agree to allow placement of solar panels in areas that could affect exercising their mineral rights.

Although Mitigation Measure MM 4.12-1 would ensure surface access and drilling areas, there is the potential for not all mineral rights holders to reach an agreement with the Project proponent. Therefore, the proposed Project, combined with other related projects, could result in the loss of availability of a known mineral resource or a locally important mineral resource recovery site. Even with implementation of Mitigation Measure MM 4.12-1, the proposed Project's incremental effect will have a cumulatively significant and unavoidable impact to mineral resources.

PG&E Midway Substation Upgrades

As discussed above, construction, grading, and excavation activities within the Midway Substation parcels have the potential to restrict access to minerals considered of value to Kern County. To avoid potential impacts to minerals, PG&E should implement Mitigation Measure 4.12-1 for the parcels located within the Midway Substation boundary, which would ensure surface access to minerals rights holders.

Summary

Even with implementation of Mitigation Measures MM 4.12-1, proposed Project impacts regarding mineral resources would be significant and unavoidable

Mitigation Measures

Implement Mitigation Measure MM 4.12-1, as described above.

Level of Significance after Mitigation

Cumulative impacts would be significant and unavoidable.

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Section 4.13

Noise

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Section 4.13
Noise

4.13.1 Introduction

This section of the Draft Environmental Impact Report (EIR) describes the affected environment and regulatory setting regarding noise. It also evaluates existing noise conditions in the Project site and analyzes the impacts regarding ambient noise and vibration levels that would result from implementation of the proposed Buttonbush Solar and Storage Project (proposed Project) and identifies mitigation measures that would reduce these impacts, if necessary.

The *Final Noise Technical Report* (Appendices J.1 and J.2 of this Draft EIR) and the *Transportation Impact Study* (Appendix K of this Draft EIR) for the Buttonbush Solar and Storage Project that Dudek prepared in December 2024 and May 2025, respectively, informed the analysis in this section.

Terminology

Ambient Noise: The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Community Noise Equivalent Level (CNEL): The average equivalent sound level during a 24-hour day, obtained after addition of a penalty of 5 decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and 10 decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.

Decibel (dB): A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).

A-Weighted Sound Level (dBA): The sound pressure level in decibels as measured on a sound meter using the A-weighting filter network. The A-weighting filter deemphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear.

Equivalent Noise Level (L_{eq}): The sound level containing the same total energy as a time varying signal over a given sample period, or the average A-weighted sound level during the measurement period. L_{eq} is typically computed over 1-hour, 8-hour, and 24-hour sample periods. The energy average is not an arithmetic average of varying dB levels over a period of time, and instead it accounts for greater sound energy represented by higher decibel contributions.

Day/Night Noise Level (L_{dn}): The average equivalent sound level during a 24-hour day, obtained after the addition of 10 decibel penalty to sound levels in the night after 10:00 p.m. and before 7:00 a.m.

L_{max}: The maximum noise level recorded during a noise event.

Noise Exposure Contours: Lines drawn around a noise source indicating constant levels of noise exposure. CNEL and DNL contours are frequently utilized to describe community exposure to noise.

Noise Level Reduction (NLR): The noise reduction between indoor and outdoor environments or between two rooms that is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of a NLR combines the effect of the transmission loss performance of the structure plus the effect of acoustic absorption present in the receiving room.

Sound Exposure Level or Single Event Noise Exposure Level: The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.

Sound Level: The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

Sound Power Level (Lw): Sound pressure levels vary substantially with distance from the source and diminish because of intervening obstacles and barriers, air absorption, wind, and other factors. Sound power is the acoustical energy emitted by the sound source and is an absolute value that is not affected by the environment.

Sound Transmission Class: The single-number rating of sound transmission loss for a construction element (window, door, etc.) over a frequency range where speech intelligibility largely occurs.

It is noted that various federal, state, and local agencies have opted to use CNEL or L_{dn} as the measure of community noise. While not identical, CNEL and L_{dn} are normally within 1dBA of each other when measured in typical community environments, and many noise standards/regulations use the two interchangeably.

Sound Fundamentals

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (for example, air) to a hearing organ such as a human ear. Noise is often defined as unwanted, unexpected, or annoying sound. The pitch or loudness of sound determines whether a sound is pleasant or objectionable. Pitch, which is the height or depth of a tone or sound, is louder to humans when it is high-pitched versus low-pitched. The loudness of a sound is determined by a combination of the intensity of the sound waves with the reception characteristics of the ear. Sound is generally characterized by several variables, including frequency and amplitude. Frequency describes the sound's pitch (tone) and is measured in cycles per second (Hertz [Hz]), while amplitude describes the sound's pressure (loudness).

Measurement scales are used to describe sounds. A dB is a unit used to describe the amplitude (loudness) of sound, and sound levels are calculated on a logarithmic, not linear, basis. The lowest sound level that an unimpaired human ear can hear is described as zero on the decibel scale. Given that sound levels are measured according to a logarithmic scale, a 10-dB increase represents a tenfold increase in acoustic energy, whereas a 20 dB increase represents a hundredfold increase in acoustic energy. Because a relationship exists between acoustic energy and intensity, each 10-dB increase in sound level can have an approximate doubling effect on loudness as perceived by the human ear.

The most common metric is the overall A-weighted sound level measurement (dBA) that has been adopted by regulatory bodies worldwide. Because A-weighting is designed to emulate the frequency response characteristics of the human ear and reflect the way people perceive sounds, it is widely used in local noise ordinances and state and federal guidelines, including those of the State of California and Kern County. **Table 4.13-1:** *Typical A-Weighted Noise Levels*, provides the relative A-weighted noise levels of common sources and environmental conditions.

Table 4.13-1: Typical A-Weighted Noise Levels

Outdoor Activities	Noise Level (dBA)	Indoor Activities
	—110—	Rock band
Jet fly-over at 1,000 feet		
	—100—	
Gas lawn mower at 3 feet		
	—90—	
Diesel truck at 50 feet at 50 miles per hour		Food blender at 3 feet
	—80—	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower, 100 feet	—70—	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	—60—	
		Large business office
Quiet urban daytime	—50—	Dishwasher next room
Quiet urban nighttime	—40—	Theater, large conference room (background)
Quiet suburban nighttime		
	—30—	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	—20—	
		Broadcast/recording studio
	—10—	
Lowest threshold of human hearing	—0—	Lowest threshold of human hearing

Source: Caltrans 2013

Key: dBA: A-weighted decibels

A-weighted sound levels can be measured or presented as equivalent sound pressure level (L_{eq}). This is defined as the average noise level, on an equal-energy basis for a stated period of time and is commonly used to measure steady-state sound or noise that is usually dominant. Statistical measurements are typically denoted by Ln, where "n" represents the percentile of time the sound level is exceeded. L_{90} represents the noise level that is exceeded during 90 percent of the measurement period. Similarly, L_{10} represents the noise level exceeded for 10 percent of the measurement period. The maximum noise level (L_{max}) is the maximum instantaneous noise level during a specific period of time.

Other descriptors of noise are commonly used to help determine noise and land use compatibility and predict an average community reaction to adverse effects of noise from sources such as traffic, construction, and industry. One of the most universal descriptors is the average day-night level (DNL or L_{dn}). As a result of recommendation by the California Health Department and state planning law, this descriptor is used by many planning agencies, including Kern County's Planning and Natural Resources Department. The L_{dn} noise metric represents a 24-hour period and applies a

time-weighted factor designed to penalize noise events that occur during nighttime hours when relaxation and sleep disturbance are of more concern for average residents. While noise occurring during the daytime hours—between 7:00 a.m. and 10:00 p.m.—is measured in decibels, noise occurring during evening hours between 10:00 p.m. and 7:00 a.m. is effectively "penalized" by adding 10 dB to the measured level.

In California, the use of the CNEL descriptor is also permitted. CNEL is identical to the day-night average sound level metric, except that CNEL adds a 5 dB penalty for noise occurring during evening hours between 7:00 p.m. and 10:00 p.m. in addition to the 10 dB penalty added between 10:00 p.m. and 7:00 a.m.

The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. Ambient sounds generally range from 30 dB (very quiet) to 100 dB (very loud). As shown in **Table 4.13-2:** *Noise Perceptibility*, changes less than 3 dB typically are not discernible (even under ideal conditions). A 3 dB change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dB is readily discernible to most people in an exterior environment, and a 10 dB change is perceived as a doubling of the sound.

Table 4.13-2: Noise Perceptibility

Noise Level	Listener Perception
± 3 dB	Threshold of human perceptibility
± 5 dB	Clearly noticeable change in noise level
± 10 dB	Half or twice as loud
± 20	Much quieter or louder

Source: Kern County Planning and Natural Resources Department 2021

Key: dB = decibels

Sound Propagation

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors (Dudek 2024):

- **Geometric Spreading:** Sound from a localized source (that is, an ideal point source) propagates uniformly outward in a spherical pattern (or hemispherical when near a surface). The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Roadways consist of several localized noise sources on a defined path, and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source.

- **Ground Absorption:** The propagation path of noise from a sound emission source to a receptor is usually horizontal and proximate to the ground. Under these conditions, noise attenuation from ground absorption and reflective-wave canceling can add to the attenuation associated with geometric spreading. For acoustically "hard" paths over which sound may traverse (that is, sites with a reflective surface between the source and the receptor, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or "soft" sites (that is, those sites with an absorptive ground surface between the source and the receptor, such as fresh-fallen snow, soft dirt, or dense vegetative ground cover), an additional ground-attenuation value of +1.5 dB per doubling of distance is normally assumed. When added to cylindrical spreading for line source sound propagation, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance.
- **Atmospheric Absorption:** In addition to aforementioned geometric spreading, the fluid medium (that is, the air) through which sound travels yields frequency-dependent attenuation that increases in magnitude with increasing frequency. The effect is influenced by temperature and relative humidity, and typically negligible over short source-to-receptor distances (for example, less than 500 feet); but it helps explain why lower-frequency sound such as a thunderclap appears to "travel farther" over great distances.
- **Meteorological Effects:** Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound pressure levels can also be increased at large distances (for example, more than 500 feet) due to atmospheric temperature inversion (that is, increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects when long distances exist between a source and receptor.
- **Shielding:** A large object or barrier in the direct path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (for example, hills and ridgelines) and human-made features (for example, buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receptor specifically to reduce noise. A barrier that breaks the line of sight between a source and a receptor will typically result in at least 5 dB of noise reduction. Taller barriers provide increased noise reduction. While a line of trees may visually occlude the direct line between a source and a receptor, its actual noise-reducing effect is usually negligible because it does not create an acoustically solid barrier. Deep expanses of dense wooded areas, on the other hand, can offer noise reduction under the right conditions.

Noise and its Effect on People

The effects of noise on people can be grouped into four general categories:

- Subjective effects of annoyance, nuisance, dissatisfaction;
- Interference with activities such as speech, sleep, learning;
- Physiological effects such as startling; and
- Physical effects such as hearing loss.

In most cases, environmental noise produces effects in the first two categories of subjective effects and interference with activities only; however, workers in industrial plants might experience physiological effects of noise. No satisfactory way exists to measure the subjective effects of noise, or to measure the corresponding reactions of annoyance and dissatisfaction. This lack of a common standard is due primarily to the wide variation in individual thresholds of annoyance and habituation to noise.

Noise can interrupt ongoing activities and can result in community annoyance, especially in residential areas. In general, most residents become highly annoyed when noise interferes significantly with activities such as: sleeping; talking; noise-sensitive work; and listening to the radio, TV, or music.

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dB. Exposure to high noise levels affects the entire human system, with prolonged noise exposure in excess of 75 dB increasing body tensions and thereby affecting blood pressure, functions of the heart, and the nervous system. In comparison, extended periods of noise exposure above 90 dB could result in permanent hearing damage. People may consider louder environments adverse, but in many cases, people will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dB) or urban or industrial areas (65 to 80 dB).

Vibration Fundamentals

Vibration is defined as the mechanical motion of the ground, buildings, or other types of structures, which is induced by the operation of mechanical devices or equipment. As described in the California Department of Transportation (Caltrans) Transportation and Construction Vibration Guidance Manual (Caltrans 2020), ground-borne vibration can be a serious concern for nearby neighbors of a transit system route or major construction site, causing buildings to shake and audible rumbling. In contrast to airborne noise, ground-borne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of ground-borne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving, and operation of heavy earth-moving equipment.

Vibration generally results in an "oscillatory" motion, in terms of the displacement, velocity, or acceleration of the ground (or structure), that causes a person to be aware of the vibration by means such as, but not limited to, sensation by touch or visual observation of moving objects. The effects of ground-borne vibration include movements of building floors, rattling of windows, and shaking of items located on shelves or hanging on walls. In extreme cases, vibration can cause damage to buildings. The noise radiated from the motion of room surfaces is called ground-borne noise. **Table 4.13-3:** *Typical Levels of Ground-borne Vibration*, presents typical levels of ground-borne vibration, vibration sources, and responses.

Table 4.13-3: Typical Levels of Ground-borne Vibration

Impacts	Velocity Level[1]	Typical Sources (at 50 feet)
Minor cosmetic damage of fragile buildings	100	Blasting from construction projects
Difficulty with tasks such as reading a video display terminal screen	90	Bulldozers and other heavy tracked construction equipment
Residential annoyance, infrequent events	80	Rapid transit, upper range
Residential annoyance, frequent events	70	High speed rail, typical
Approximate threshold for human perception	60	Bus or truck, typical
None	50	Typical background vibration

Source: Kern County Planning and Natural Resources Department 2021

Note:

[1] Root mean square vibration velocity level in vibration decibels relative to 10^{-6} inches per second.

4.13.2 Environmental Setting

The proposed Project would be located on privately owned land in the valley region of unincorporated Kern County. Existing land uses within and surrounding the Project site are primarily agricultural, with the community of Buttonwillow and Pacific Gas & Electric (PG&E) Midway Substation directly south of Site 1, and sparse rural residences elsewhere. The proposed Project straddles I-5, and the Buttonwillow Raceway Park is located west of the Project site adjacent to I-5. Most of the existing agricultural uses are crop production; one dairy is located within the Project site. The proposed Project is immediately north of the community of Buttonwillow. The nearest school is Buttonwillow Elementary School, located approximately one mile southwest at 42600 Highway 58 Buttonwillow, California 93206.

Existing Noise Environment

Measurements of the ambient sound level were conducted at six locations (ST1-ST6) in the vicinity of the Project site to characterize the existing noise environment. The measurement locations were distributed throughout the project vicinity with an emphasis on locations that are representative of one or more noise-sensitive receptors (that is, residential dwellings) near the Project site, described further below. The ambient noise levels ranged from approximately 38 dBA L_{eq} at ST4 to 73 dBA L_{eq} at ST2. The primary noise source at the locations consisted of traffic along adjacent roadways. Secondary sources included distant traffic, distant industrial noise, distant landscaping activities, and birdsong (Dudek 2024). **Table 4.13-4:** *Measured Baseline Noise Lines*, provides a summary of the sound monitoring locations and results, identified by their tag number as illustrated in **Figure 4.13-1:** *Modeled Noise Measurement Locations and Sensitive Receptors*.

Table 4.13-4: Measured Baseline Noise Levels

Survey Tag	Location/Address	L_{eq} (dBA)	L_{max} (dBA)
ST1	Southeast of Project site, adjacent to single-family dwellings at 5482 Cannon Street	57.3	82.2
ST2	Within Project site, adjacent to the Tjaarda Dairy and a single-family dwelling at 19003 Magnolia Avenue (APN 088-220-16)	72.6	93.5
ST3	West of Project site, between single-family dwellings at 17815 and 17841 Rowlee Road	71.3	90.6
ST4	Southwest of Project site, adjacent to dwellings and park at Meadow Street and Crespino Avenue	38.1	65.0
ST5	South of Project site, adjacent to motel at 33210 Route-58	69.7	84.8
ST6	Central portion of Project site, adjacent to single-family dwelling at 26194 Burbank Street	62.6	83.5

Source: Dudek 2024

Key: dBA = A-weighted decibels

Sensitive Receptors

Noise- and vibration-sensitive land uses are locations where the presence of unwanted sound could negatively impact human or sensitive wildlife habitat activities which would adversely affect the use of such land uses. Residences, schools, and hospitals, and convalescent homes are all examples, with others depending on the local jurisdiction's discretion. According to the Kern County General Plan Noise Element (Kern County 2009), sensitive receptors include residential areas, schools, churches, convalescent and acute care facilities, and parks and recreational areas. Existing dwellings and a park are located near Site 1 in the community of Buttonwillow, and several single-family dwellings are located throughout the Project site.

The nearest sensitive receptors include single-family dwellings on various parcels within the Project site (APNs 087-040-04, 088-190-20, and 100-010-22) which would be removed during project construction. These residences would not continue to be occupied, and most or all of the buildings would be removed. Other single-family dwellings and outbuildings are partially included in the Project site and have agreed to allow Project development on the land they own, however the removal of the dwellings would not be required to accommodate Project development. These include 1) a residence on APN 087-040-04, located west of Rowlee Road and south of Merced Avenue; 2) a single-family dwelling and outbuildings on APN 087-040-06, west of Rowlee Road and north of Lerdo Hwy; 3) a single-family dwelling and outbuildings on APNs 103-010-42 and 103-010-43, east of Brandt Road and south of Seventh Standard Road; and 4) a single-family dwelling and agriculture-related outbuildings on APN 103-060-04, just east of Brandt Road and north of Flores Road.

Additionally, there are several single-family residences in close proximity to the project boundary, but not within the Project site. Each sensitive receptor and proximity to the Project site is listed in **Table 4.13-5:** *Sensitive Noise and Vibration Receptors*, with reference identification in relation to **Figure 4.13-1:** *Modeled Noise Measurement Locations and Sensitive Receptors*.

Table 4.13-5: Sensitive Noise and Vibration Receptors

Modeled Receptor	Location/Address	Distance to Project Site (feet)	Project Site #
M1	South of Site 5, North of Hageman Road, east of Brandt Road	2,300	5
M2	East of Brandt Road, North of Flores Avenue	50	5
M3	East of Site 2, North of 7th Standard Road	1,500	2
M4	South of Burbank Street, east of Magnolia Avenue	100	6
M5	East of Site 6, North of Orange Avenue E	50	6
M6	Casa Merced Venue (26307 Merced Avenue)	1,900	8

Source: Dudek 2024

4.13.3 Regulatory Setting

Federal

Although no federal regulations are applicable to the proposed Project, guidance and methodologies from the Federal Transit Administration's (FTA's) Transit Noise and Vibration Impact Assessment Manual (FTA 2018) pertaining to construction noise and vibration are used in this analysis.

Additionally, federal highway and aircraft guidelines and regulations have been established by other agencies and are summarized in **Table 4.13-6:** *Federal Guidelines and Regulations for Exterior Noise (dBA)*. These federal regulations do not apply to project activities but may be applicable to existing activities in the Project site and represent useful benchmarks for noise standards used by other agencies.

Table 4.13-6: Federal Guidelines and Regulations for Exterior Noise (dBA)

Agency	L_{eq}[1]	DNL
Federal Energy Regulatory Commission	[49]	55
U.S. Department of Transportation (construction noise level at residential land use during daytime)[2]	80	—
Federal Highway Administration	67	[67]
Federal Aviation Administration	[59]	65
U.S. Department of Housing and Urban Development[3]	[59]	65

Sources and Notes:

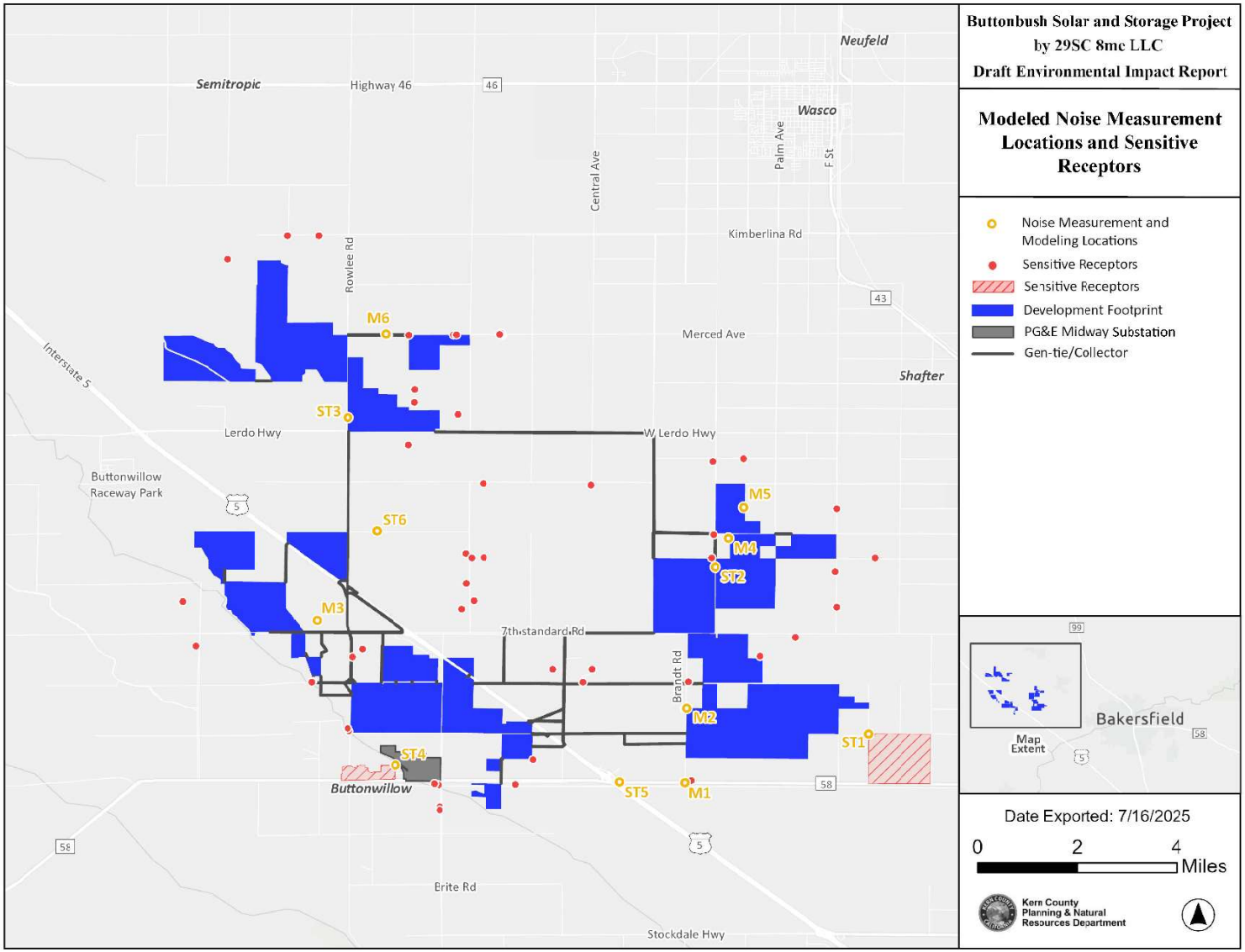
[1] Brackets around numbers (for example, [59]) indicate a calculated equivalent standard. Because FHWA regulates peak noise level, the DNL is assumed equivalent to the peak noise hour.

[2] FTA 2018

[3] 24 CFR 51B; HUD 2014

Key: CFR = Code of Federal Regulations; dBA = A-weighted decibels; DNL = day-night noise level; FHWA = Federal Highway Administration; L_{eq} = equivalent sound level

Figure 4.13-1: Modeled Noise Measurement Locations and Sensitive Receptors



Occupational Safety and Health Act of 1970

The Occupational Safety and Health Act (29 United States Code [USC] 651-678) regulates on-site noise levels. This regulation protects workers from the effects of occupational noise exposure. The noise exposure level of workers is regulated at 90 dBA over an 8-hour work shift to protect hearing (29 Code of Federal Regulations 1910.95). Employee exposure to levels exceeding 85 dBA requires employers to develop a hearing conservation program. Such programs include adequate warning, the provision of hearing protection devices, and periodic employee testing for hearing loss.

Noise Control Act of 1972

The Noise Control Act (42 USC 4910) establishes a national policy to promote an environment for all Americans to be free from noise that jeopardizes their health and welfare. To accomplish this, the Noise Control Act establishes a means for the coordination of federal research and activities in noise control, authorizes the establishment of federal noise emissions standards for products distributed in commerce, and provides information to the public with respect to the noise-emission and noise-reduction characteristics of such products.

State

Government Code Section 650302(g)

California Government Code Section 65302(g) requires the preparation of a Noise Element in a general plan, which shall identify and appraise the noise problems in the community. The Noise Element shall recognize the guidelines adopted by the Office of Noise Control in the State Department of Health Services and shall quantify, to the extent practicable, current and projected noise levels for the following sources:

- Highways and freeways
- Primary arterials and major local streets
- Passenger and freight on-line railroad operations and ground rapid transit systems
- Aviation and airport-related operations
- Local industrial plants
- Other ground stationary noise sources contributing to the community noise environment

California General Plan Guidelines

The California General Plan Guidelines, published by the Governor's Office of Land Use and Climate Innovation (LCI), provides guidance for the acceptability of specific land use types within areas of specific noise exposure. **Table 4.13-7:** *Land Use Compatibility for Community Noise Environments*, presents guidelines for determining acceptable and unacceptable community noise exposure limits for various land use categories. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution. The LCI guidelines are advisory. Local jurisdictions,

including Kern County, have the responsibility of setting specific noise standards based on local conditions.

Table 4.13-7: Land Use Compatibility for Community Noise Environments

Land Use Type	Community Noise Exposure			
	Normally Acceptable[1]	Conditionally Acceptable[2]	Normally Unacceptable[3]	Clearly Unacceptable[4]
Residential-Low Density—Single-family, Duplex, Mobile Homes	50–60	55–70	70–75	75–85
Residential—Multi-family	50–65	60–70	70–75	70–85
Transient Lodging—Motels, Hotels	50–65	60–70	70–80	80–85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50–70	60–70	70–80	80–85
Auditoriums, Concert Halls, Amphitheaters	NA	50–70	NA	65–85
Sports Arena, Outdoor Spectator Sports	NA	50–75	NA	70-85
Playgrounds, Neighborhood Parks	50–70	NA	67.5–77.5	72.5–85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50–70	NA	70–80	80–85
Office Buildings, Business and Commercial and Professional	50–70	67.5–77.5	75–85	NA
Industrial, Manufacturing, Utilities, Agriculture	50–75	70–80	75–85	NA

Source: LCI 2017

Notes:

[1] Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise-insulation requirements.

[2] Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise-insulation features have been included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

[3] Normally Unacceptable: New construction or development should be discouraged. If new construction of development does proceed, a detailed analysis of the noise-reduction requirements must be made and needed noise-insulation features must be included in the design.

[4] Clearly Unacceptable: New construction or development should generally not be undertaken.

Key: NA = not applicable

California Code of Regulations Title 24

The State of California has adopted noise standards in areas of regulation that the federal government does not preempt. State standards regulate noise levels of motor vehicles, sound transmission through buildings, occupational noise control, and noise insulation. State regulations governing noise levels generated by individual motor vehicles and occupational noise control are not applicable to planning efforts, nor are these areas typically subject to the California Environmental Quality Act (CEQA) analysis. State noise regulations and policies applicable to the proposed Project include Title 24 requirements and noise exposure limits for various land use categories. The 2019 California Building Code (Part 2, Title 24, Section 1204.6, California Code of Regulations) stipulates “interior noise levels attributable to exterior sources shall not exceed 45

dB in any habitable room. The noise metric shall be either the day-night average sound level (L_{dn}) or the CNEL.

California Division of Occupational Safety and Health

The California Division of Occupational Safety and Health implements and enforces the noise exposure limits established by the federal Operational Safety and Health Administration, described above, for the state of California. State California Department of Health Services guidelines define acceptable noise levels based on a land use compatibility matrix designed to protect residents and other sensitive land uses from excessive noise levels. The matrix is based on the correlation of noise levels and their effects on various land uses.

The State requires all municipalities to prepare and adopt a comprehensive long-range general plan, and each general plan must contain a noise element (California Government Code Section 65302(f) and Section 46050.1 of the Health Safety Code). The requirements for the noise element of the general plan include describing the noise environment quantitatively using a cumulative noise metric such as CNEL or DNL, establishing noise/land use compatibility criteria, and establishing programs for achieving and/or maintaining land use compatibility. Noise elements should address all major noise sources in the community, including mobile and stationary noise sources, and establish guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. See below for a description of the Kern County General Plan Noise Element.

California Noise Control Act of 1973

Sections 46000 through 46080 of the California Health and Safety Code, known as the California Noise Control Act of 1973, declares that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also identifies a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

California Department of Transportation Construction Vibration Guidance Manual

The Caltrans Transportation and Construction Vibration Guidance Manual (Caltrans 2020) is a commonly used reference for evaluating construction-related vibration impacts. The manual provides guidance for determining annoyance potential criteria and damage potential threshold criteria. These criteria are provided below in **Table 4.13-8:** *Caltrans Guideline Vibration Annoyance Potential Criteria*, and **Table 4.13-9:** *Caltrans Guideline Vibration Damage Potential Threshold Criteria*, and are presented in terms of peak particle velocity (PPV) in inches per second (ips).

Table 4.13-8: Caltrans Guideline Vibration Annoyance Potential Criteria

Human Response	Maximum PPV (inches/second)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely Perceptible	0.04	0.01
Distinctly Perceptible	0.25	0.04
Strongly Perceptible	0.9	0.1
Severe	2.0	0.4

Source: Caltrans 2020

Key: PPV = peak particle velocity

Table 4.13-9: Caltrans Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (inches/second)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile, historic buildings, ancient monuments	0.13	0.08
Fragile buildings	0.2	0.10
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.30
New residential structures	1.0	0.50
Modern industrial/commercial buildings	2.0	0.50

Source: Caltrans 2020

Key: PPV = peak particle velocity

Local

Kern County General Plan

Chapter 3. Noise Element

The Noise Element (Chapter 3 of the Kern County General Plan) establishes maximum acceptable noise levels in terms of the L_{dn} metric described above. Per Policy 5 of the Noise Element, the maximum acceptable noise levels for exterior and interior areas are:

(a) 65 dB L_{dn} in outdoor activity areas; and

(b) 45 dB L_{dn} within interior living spaces or other noise-sensitive interior spaces.

The following noise-sensitive land uses have been identified in the County:

- Residential areas
- Schools
- Convalescent and acute care hospitals

- Parks and recreational areas
- Churches

3.3 Sensitive Noise Areas

Goals

Goal 1. Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.

Goal 2. Protect the economic base of Kern County by preventing the encroachment of incompatible land uses near known noise-producing roadways, industries, railroads, airports, oil and gas extraction, and other sources.

Policies

Policy 1. Ensure that residents of Kern County are protected from excessive noise and that moderate levels of noise are maintained.

Policy 2. Require noise level criteria applied to all categories of land uses to be consistent with the recommendations of DOSH.

Policy 3. Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise.

Policy 4. Utilize good land use planning principles to reduce conflicts related to noise emissions.

Policy 5. Prohibit new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into the project design. Such mitigation shall be designed to reduce noise to the following levels:

(a) 65 dB L_{dn} or less in outdoor activity areas; and

(b) 45 dB L_{dn} or less within interior living spaces or other noise-sensitive interior spaces.

Policy 6. Ensure that new development in the vicinity of airports will be compatible with existing and projected airport noise levels as set forth in the Airport Land Use Compatibility Plan (ALUCP).

Policy 7. Employ the best available methods of noise control.

Implementation Measures

The following are programs to be carried out by Kern County to implement the goals and policies of the Noise Element.

Implementation Measure A. Utilize zoning regulations to assist in achieving noise-compatible land use patterns.

Implementation Measure C. Review discretionary development plans, programs, and proposals, including those initiated by both the public and private sectors, to ascertain and ensure their conformance to the policies outlined in this element.

Implementation Measure E. Review discretionary development plans to ensure compatibility with adopted Airport Land Use Compatibility Plans.

Implementation Measure F. Require proposed commercial and industrial uses or operations to be designed or arranged so that they will not subject residential or other noise-sensitive land uses to exterior noise levels in excess of 65 dB Ldn and interior noise levels in excess of 45 dB Ldn.

Implementation Measure G. At the time of any discretionary approval, such as a request for a General Plan Amendment, zone change or subdivision, the developer may be required to submit an acoustical report indicating the means by which the developer proposes to comply with the noise standards. The acoustical report shall:

(a) Be the responsibility of the applicant.

(b) Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics.

(c) Be subject to the review and approval of the Kern County Planning Department and the Environmental Health Services Department. All recommendations therein shall be complied with prior to final approval of the project.

Implementation Measure I. Noise analyses shall include recommended mitigation measures, if required, and shall:

(a) Include representative noise level measurements with sufficient sampling periods and location to adequately describe local conditions.

(b) Include estimated noise levels, in terms of CNEL, for existing and projected future (10 to 20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element.

(c) Include recommendations for appropriate mitigation to achieve compliance with the adopted polices and standards of the Noise Element.

(d) Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the adopted standards and policies of the Noise Element will not be achieved, a rationale for acceptance of this project must be provided.

Implementation Measure J. Develop implementation procedures to ensure that requirements imposed pursuant to the findings of an acoustical analysis are conducted as part of the project permitting process.

Kern County Code of Ordinances

Section 8.36 (Noise Control) of the Kern County Code of Ordinances limits construction to the hours of 6:00 a.m. to 9:00 p.m. on weekdays, and between 8:00 a.m. and 9:00 p.m. on weekends, when construction is within 1,000 feet of an occupied residential dwelling. Certain exceptions to these hours are specified in the code.

4.13.4 Impacts and Mitigation Measures

Methodology

Noise impacts associated with the proposed Project assessed in this section are based on the Noise Technical Report (Appendix J.2). Measurements of existing ambient noise levels in the project vicinity were conducted on January 23rd and January 26th, 2023, using Soft dB Piccolo II Integrating Sound Level Meter. The meter was equipped with a 0.5-inch, pre-polarized condenser microphone with pre-amplifier and meets the current American National Standards Institute standard for a Type 2 (General Use) sound level meter. Short-term (15-minute) ambient noise measurements were conducted at six locations: Sites ST-1 through ST-6 (**Figure 4.13-1:** *Modeled Noise Measurement Locations and Sensitive Receptors*). The locations of the six ambient noise measurements were selected as they are in the vicinity of existing sensitive receptor sites (residential) that are near or adjacent to the Project site. It should be noted that ST2 is located next to the existing Tjaarda Dairy and ST3 is located close to convenience stores and truck stops, thereby resulting in baseline measurements skewing higher than locations closer to more isolated sensitive receptors shown in **Figure 4.13-1:** *Modeled Noise Measurement Locations and Sensitive Receptors*. There are additional noise-sensitive receptors located in the vicinity of the potential generation tie-line (gen-tie) route along Valpredo Avenue. **Table 4.13-3:** *Typical Levels of Broud-borne Vibration*, summarizes the short-term ambient noise measurement results.

Construction noise modeling included a Microsoft Excel–based noise prediction model emulating and using reference data from the Federal Highway Administration Roadway Construction Noise Model (RCNM) (FHWA 2008) to estimate construction noise levels at the nearest occupied noise-sensitive land use. Although the RCNM was funded and promulgated by the Federal Highway Administration, it is often used for non-roadway projects, because the same types of construction equipment used for roadway projects are often used for other types of construction. Input variables for the predictive modeling consist of the equipment type and number of each (for example, two graders, a loader, a tractor), the duty cycle for each piece of equipment (for example, percentage of time within a specific time period, such as an hour, when the equipment is expected to operate at full power or capacity and the distance from the noise-sensitive receiver). The predictive model also considers how many hours that equipment may be on-site and operating (or idling) within an established work shift. Conservatively, no topographical or structural shielding was assumed in the modeling. The RCNM has default duty-cycle values for the various pieces of equipment, which were derived from an extensive study of typical construction activity patterns (Dudek 2024).

The Noise Technical Report utilized site plan information that provided facility equipment locations to derive reference sound power levels for a variety of on-site operating noise-producing project components. The propagation of sound from these components with commercially available Datakustik CadnaA software. The software incorporates relevant International Organization of Standardization 9613-2 algorithms and reference data that are generally considered to be industry standard for outdoor noise modeling. Some variables included assumptions based on the existing setting including the following:

- Acoustical ground absorption of the proposed Project site and the surrounding topography (conservatively modeled as flat, which generally approximates the site terrain characteristics) is set at 0.8, which on a zero (reflective) to one (absorptive) scale approximates a combination of the grass-covered soils that generally surround the Project site and any anticipated loosely graveled project site cover.
- Meteorological conditions presume "calm" wind conditions (that is, less than 0.5 meters per second in any direction) and average air temperature and relative humidity of 68 degrees Fahrenheit and 70%, respectively.
- The model "configuration" settings include reflection order set to "1", which can be interpreted to mean that a sound emission path from a source will continue to be analyzed after impingement upon, and reflection from, the first intervening structure or barrier.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the CEQA Guidelines, to determine if a project could have a significant noise-related adverse effect. The thresholds identified in Appendix G of the Guidelines indicate that a project normally would be considered to have a significant impact if it would result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the proposed Project exceeding standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Generation of excessive ground-borne vibration or ground-borne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or
- For a project located within an area subject to the Kern County ALUCP, exposing people residing or working in the project area to excessive noise levels.

Project Impacts

Impact 4.13-1: Would the Project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

In accordance with the CEQA Guidelines, noise impacts associated with the proposed Project were analyzed against the standards identified in the FTA manual guidelines, the Kern County Code of Ordinances, and Kern County General Plan. As stated above, the Kern County General Plan applies an exterior noise level standard of 65 dB L_{dn} for defined noise-sensitive receptors, therefore, a substantial permanent increase in ambient noise levels would occur if noise levels increase, thereby exceeding 65 dBA CNEL. For situations where noise modeling was not conducted, a change in 3 dB is used to determine a change in ambient noise, as this is the accepted threshold of human perceptibility. This analysis examined both temporary and operational noise levels with implementation of the proposed Project.

Construction Impacts

Temporary noise impacts generated during construction could result from site preparation and grading, construction of access roads and internal roads, security fencing, and the construction and installation of project components including solar arrays, battery installation, the electrical substation, operation and maintenance (O&M) facilities, microwave tower, and gen-tie lines. The types of construction equipment that would be used would depend on the construction phase but would typically include standard heavy equipment and vehicles such as graders, tractors, loaders, cranes, rubber-tired bulldozers, generators, and paving equipment. Proposed Project construction is expected to take up to five years and phasing may occur with the development of one or more of the sites simultaneously and could include a combination of any of the sites. It is estimated that an average of up to 800 workers per day with up to 1,334 workers during peak construction periods would be required during construction. Short-term construction noise impacts would be considered to have a significant impact if construction would exceed applicable noise standards or result in substantial increases in ambient noise levels at the nearest noise-sensitive land uses during the more noise-sensitive evening and nighttime hours.

The range of noise levels generated by construction depends on several variables and include equipment type, size, power of equipment, percentage of time equipment is in operation, the condition of each piece of equipment, and the number of equipment pieces that would operate at the various sites, either at one or more, or simultaneously, and a combination of these occurring throughout the seven sites. For this reason, the Noise Technical Report includes an aggregate noise emission prediction from the construction activities per construction phase at two evaluation distances in order to predict noise levels at the nearest sensitive receptors. The prediction locations included 1) from the nearest position of the construction site boundary and 2) the geographic center (centroid) of the construction site, which serves as the time-averaged location, or geographic acoustical centroid of active construction equipment. However, because of the large size of the Project site, noise from activities attenuating over great distances would yield negligible acoustic

contribution, and for the purposes of this analysis, the construction site area nearest to the off-site sensitive receptor is studied.

At the site boundary, the analysis assumes that one piece of each of the two loudest equipment types per phase will be involved in the construction activity at the closest 50-foot source-to-receiver distance for a limited portion of the 8-hour period, while the remaining equipment for the phase operate from the geographic center. In other words, at such proximity, the operating equipment cannot "stack" or crowd the vicinity at the site boundary and still operate. As discussed in the Methodology section above, the noise modeling incorporated typical construction equipment noise-emission levels, represented at maximum noise generation or full-power operation, and are based on an Federal Highway Administration 2006 technical advisory, as shown in **Table 4.13-10:** *Typical Construction Equipment Noise Emission Levels*, below.

The nearest noise-sensitive receptors are approximately 50 feet from Site 5 and Site 6. As presented in **Table 4.13-11:** *Predicated Construction Noise Levels per Activity Phase*, the estimated construction noise levels at the nearest sensitive receptor are predicted to be as high as 80 dBA Leq over an 8-hour period during site preparation, and as low as 75 dBA during electrical installation. Temporary sound levels from construction are evaluated against the FTA manual guidelines and the Kern County Code of Ordinances (FTA 2018). While the Kern County General Plan and Section 8.36.020 of the Kern County Code of Ordinances do not set daytime construction-related noise standards, the FTA guidance recommends a threshold of 80 dBA 8-hour L_{eq} for the exterior of residential land uses during daytime periods. At the nearest noise-sensitive receptor site, noise generated during construction would not exceed daytime FTA guidance. Additionally, receptor sites M2 and M5 (nearest to the proposed Project), are expected to experience pre-existing outdoor ambient noise levels that are comparable to the measured samples at ST1 and ST2, as discussed in Section 4.13.2, *Environmental Setting*, with Leq values ranging between 57 dBA and 73 dBA. Because the predicted construction noise associated with this nearest-to-boundary case ranges between 75 dBA and 80 dBA, the increase in decibels could range between clearly noticeable to much louder, depending on conditions such as barriers from the noise source and topography. Therefore, construction of the proposed project could result in a substantial temporary increase in daytime ambient noise levels in excess of local noise standards. Implementation of Mitigation Measures MM 4.13-1 through MM 4.13-3 would reduce construction noise exposure levels and the potentially audible change to the outdoor sound environment.

Under Section 8.36.020 of the Kern County Code of Ordinances, construction noise between the hours of 9:00 p.m. and 6:00 a.m. on weekdays and 9:00 p.m. and 8:00 a.m. on weekends requires approval from the development services agency director or designated representative if audible to a person with average hearing at a distance of 150 feet from the construction site if within 1,000 feet of an occupied residential dwelling, which would apply to the proposed Project. There are several residential dwellings located 50 feet from construction at Sites 5 and 6; although the County lawfully permits nighttime construction activities and does not include a quantitative noise threshold to ascertain exceedance, FTA guidance recommends a threshold of 70 dBA 8-hour Leq for the exterior of residential land uses during nighttime. Therefore, there is potential for construction activity to exceed the nighttime FTA guidance standard, resulting in a potentially significant impact. Therefore, implementation of Mitigation Measures MM 4.13-1 through

MM 4.13-3 would reduce nighttime construction noise to the extent feasible and result in off-site construction noise exposures less than this 70 dBA 8-hour Leq nighttime limit.

Table 4.13-10: Typical Construction Equipment Noise-Emission Levels

Equipment Type	Typical A-weighted Maximum Sound Level (L_{max}) at 50 Feet from Source
Air Compressor	80
Backhoe	80
Compactor	82
Concrete mixer	85
Concrete pump	82
Concrete vibrator	80
Concrete Saw	90
Crane, mobile	85
Dozer	85
Excavator	85
Flat bed truck	84
Generator	82
Grader	85
Impact wrench	85
Jackhammer	88
Loader	80
Paver	85
Pneumatic tool	85
Pump	77
Roller	85
Welder/Torch	73

Source: FHWA 2008

Table 4.13-11: Predicted Construction Noise Levels per Activity Phase

Equipment Type	8-Hour L_{eq} at Nearest Noise-Sensitive Receptor	
	To Construction Site Boundary (dBA)	To Acoustical Centroid of Site (dBA)
Site Preparation (grader, flatbed truck, compactor, skid steer, tractor, loader, forklift)	80	64
Tracker Foundations (generator, flatbed truck, compressor, skid steer, loader, forklift, post driver)	77	64
Underground Cabling (excavator, trencher, flatbed truck, compactor, loader, skid steer)	77	62
Mechanical Installation (generator, flatbed truck, compressor, loader, forklift)	78	64
Electrical Installation (crane, flatbed truck, compressor, trencher, excavator, loader)	75	62

Source: Dudek 2024

Key: L_{eg} = equivalent noise level; dBA = A-weighted decibel

Construction-Related Traffic Noise

Proposed Project construction could increase hourly and daily average traffic noise levels from the construction worker commutes and haul truck trips on local roadways. During the facility construction phases, proposed Project construction has the potential to add up to 3,320 daily trips between workers, vendors, and haul trucks. As discussed in the Traffic Study, the average daily traffic (ADT) throughout the Project site is over 6,000 trips (Appendix K). A doubling of traffic volumes would be needed to result in a 3 dB increase in traffic noise levels, which is the lowest change perceptible to the human ear in ideal listening conditions. The addition of 3,320 construction trips spread over the workday would not double existing volumes on any roadway in the project vicinity. Therefore, given the existing high traffic volumes on area roadways, the addition of construction traffic is not expected to result in a perceptible increase in hourly average or daily average traffic noise levels. Impacts related to construction traffic noise would be less than significant.

Operation Impacts

The proposed Project involves the operation of a photovoltaic (PV) solar facility and associated infrastructure necessary to generate up to 2 GW of alternating electrical current power with an up to 2 GW energy storage system. Stationary noise sources during operation would include PV solar arrays with associated electrical equipment (such as transformers and inverters), energy storage systems, substations, microwave towers, collector lines, and the operations and maintenance facility.

PV Solar Fields—Panel Repositioning

PV panel noise would come from the tracking motors. These systems involve the panels being driven by motors to make brief, incremental adjustments to track the arc of the sun to maximize the solar effect. While these motors may generate noise of up to 44 dBA at 50 feet, these motors would operate briefly throughout an hour (for example, several minutes per hour) as the sun moves west across the sky for final reset at night to face the eastern sky. By operating only several minutes per hour, the hourly noise level would be negligible at the nearest sensitive receivers. In addition, as observed during a site visit to the area and viewing of existing solar farms in the area, noise levels from PV panel tracking were not detected over the existing ambient noise sources in the area (wind, vehicles, planes, and trains) just outside of the solar farm properties (Dudek 2024). Therefore, noise levels from the PV panels would be less than significant.

Gen-Tie

The gen-tie transmission line would generate noise from the corona effect, which is a phenomenon associated with the electrical ionization of the air that occurs near the surface of the energized conductor and suspension hardware due to very high electric field strength. This is audible power line noise that is generated from electric corona discharge, which is usually experienced as a random crackling or hissing sound. The corona effect on the gen-tie transmission line, assuming "fair weather" conditions, would generate a noise level of approximately 20 dBA at a distance of 50 feet (San Luis Obispo County 2011). This is the approximate distance to the nearest residences from the gen-tie route. As observed during a site visit to the area and transmission lines from

existing solar farms in the area, noise levels from these transmission lines were not detected over the existing ambient noise sources in the area (wind, vehicles, planes, and trains) just outside of the solar farm properties (Dudek 2024). Therefore, per site observations and the general low noise of transmission lines, gen-tie noise would not exceed the County's standard of 65 dBA L_{dn} at the nearest residences, and impacts would be less than significant.

Combined Mechanical Equipment Noise

Sound power levels are necessary for determining dBA at the nearest noise-sensitive receptor sites. Based on the Noise Technical Report and methodology above, the overall sound power level for a PV inverter cluster is 103.1 dBA, substation transformers is 106.4 dBA, battery energy storage system containers is 120.9 dBA, and medium voltage transformers is 93.4 dBA. Using these sound power levels, the operational noise levels from the Project site would range between 45.0 L_{dn} and 53.8 L_{dn} at the nearest noise-sensitive receptors, as illustrated in **Table 4.13-12:** *Predicted Noise Levels per Activity Phase*. 53.8 L_{dn} is below the Kern County General Plan standard of 65 dBA L_{dn} for exterior noise at the nearest noise-sensitive receptor. Thus, the predicted aggregate noise emission associated with operation of on-site equipment, including the inverter/transformer platforms, battery storage container cooling units, and the collector substation, is anticipated to be compliant with County standards, and impacts would be less than significant.

Operational Traffic Noise

Once the proposed construction activities are complete, vehicle trips to the Project site would be associated with operations and maintenance of the solar facility. The proposed Project would require an operational staff of up to 20 full-time employees, generating approximately 50 daily trips (one incoming and one outgoing trip per employee). While the Noise Technical Report assumed a total of 50 ADT, the Transportation Impact Study (Appendix K), identifies a total of 40 ADT, concluding a conservative approach that is slightly over the estimated ADT. This difference is negligible, and 10 ADTs would not make a noticeable difference as it is unlikely to result in a 3 dB increase. In addition, these trips would be spread out over the Project site, which would further decrease their potential to create a 3dB increase.

Decommissioning

At such time the main project is decommissioned, heavy construction equipment operation and site restoration activities would result in a temporary increase in ambient noise levels. Given the fact that much of the construction equipment necessary to construct the proposed Project would also be required to decommission the site, it is reasonable to assume that decommissioning activities would be similar in nature to the proposed Project construction activities. Similar to the construction noise analysis above, decommissioning of proposed Project would result in potentially increased noise levels compared to existing conditions. Therefore, noise reduction measures MM 4.13-1 through MM 4.13-3 would be implemented during decommissioning activities to reduce temporary noise levels at off-site receptors

Table 4.13-12: Predicted Noise Levels per Activity Phase

Receiver	Receiver Description	dBA L_{eq}	dBA L_{dn}	Threshold Exceeded?[1]
M1	Old Highway 58	39.1	45.5	No
M2	Brandt Avenue	47.4	53.8	No
M3	North of 7th Standard Road	40.8	47.2	No
M4	South of Burbank Street	44.4	50.8	No
M5	North of Orange Avenue	46.8	53.2	No
M6	26307 Merced Avenue	38.6	45.0	No

Source: Dudek 2024

Note:

[1] Operational noise threshold based on the Kern County standard of 65 dBA Ldn for exterior noise at the nearest noise-sensitive receptors.

PG&E Midway (Midway) Substation Upgrades

The proposed Project includes enlarging the Midway Substation's 500-kilovolt (kV) yard within the PG&E-owned Midway Substation property boundaries. The Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities as part of the proposed Project. PG&E may install two four-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest of the Midway Substation property. Other activities include: installing up to nine, 67.5 cubic feet underground substructure vaults along the conduit trenches; removing an existing precast security wall at the northwest side of the Midway Substation and replacing it with a new 12-foot wall; grading of the connection area; installing approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker; equipment foundations and concrete trenches; equipment cabinets; bus structures; communication lines; conduits; pull boxes; and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the Point of Change of Ownership for the proposed Project. Up to four approximately 175-foot-tall lattice steel towers or tubular steel poles would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads. For a detailed description of the Midway Substation upgrades, see Section 3.0, *Project Description.*

The Midway Substation site is located adjacent to Buttonwillow Recreation and Park District public recreational facilities and approximately 400' feet (at the closest point) from residentially-developed property. As stated above, the Kern County General Plan considers both residential and recreational uses as noise-sensitive uses. Depending on the specific location of noise-generating activities, type of vehicles and/or equipment that are used, and number of vehicles and/or equipment that are operated concurrently, construction and decommissioning activities at the Midway Substation site have the potential to exceed the maximum acceptable noise standards for sensitive receptors, particularly users of the recreational facilities that are located on the Buttonwillow Recreation and Park District property that is adjacent to the Midway Substation site.

Further, construction and/or decommissioning noise impacts would be more substantial if activities must occur during the nighttime when the ambient noise environment is generally quiet. Therefore, implementation of Mitigation Measures MM 4.13-1 through MM 4.13-3 would be required during construction and decommissioning activities to reduce construction- and/or decommissioning-generated noise to acceptable noise levels for sensitive receptors. In addition, PG&E has adopted Best Management Practices (BMPs) (Appendix M) that apply to all PG&E construction projects, which include a BMP that requires the implementation of construction techniques to minimize noise generation.

Most noise generated from operation of the Midway Substation upgrades is unlikely to exceed maximum acceptable noise levels for noise-sensitive receptors located at the Buttonwillow Recreation and Park District public recreational facilities and residences within the Buttonwillow community. However, the Midway Substation upgrades will involve the use of new transformers which could generate noise that has the potential to exceed maximum acceptable noise levels. Therefore, Mitigation Measure MM 4.13-4 should be implemented to shield the transformers and ensure that noise is attenuated so as not exceed maximum acceptable noise levels. Further, O&M of the Midway Substation upgrades will not require an increase in employees and a corresponding increase in traffic that could result in a significant increase in traffic-generated noise.

Summary

Temporary noise impacts generated by construction are predicted to be as high as 80 dBA L_{eq} at certain residences, which is at the acceptable FTA dBA guidance for the exterior of residential land uses. However, when considering noise perceptibility at these locations, predictions show that proposed Project-generated noise could increase noise levels from ranges of clearly noticeable to much louder. Additionally, if approved by Kern County, limited nighttime activities could result in noise levels that would exceed 5 dBA over ambient conditions at the nearest sensitive receptors. Finally, construction and decommissioning activities associated with the Midway Substation upgrades have the potential to generate noise that exceeds maximum acceptable noise levels at the Buttonwillow Recreation and Park District public recreational facilities and, to a lesser degree, residences in the Buttonwillow community. Therefore, implementation of Mitigation Measure MM 4.13-1 is required to reduce construction- and decommissioning-related noise impacts. Mitigation Measure MM 4.13-1 would require that equipment is placed in ways that will allow for the greatest distance between the noise source and the noise-sensitive receptor, reducing the potential for threshold exceedance. Mitigation Measure MM 4.13-1 also requires that equipment be fitted with noise-reduction features. Additionally, if construction is necessary during nighttime hours, and with the approval from Kern County development services, the Project proponent would be required to implement a noise control plan which could include the restriction of construction activities outside of permitted hours within 1,000 feet of an occupied residential building. Additionally, implementation of Mitigation Measures MM 4.13-2 and MM 4.13-3 below, would further reduce impacts during construction activities. Mitigation Measure MM 4.13-2 would require a noise coordinator during construction. Mitigation Measure MM 4.13-3 would be implemented to notify the public of the proposed Project schedule and provide contact information, if needed. With the placement of noise sources, appropriately fitted equipment, and nighttime restrictions, temporary increases in ambient noise levels would be less than significant.

As discussed above, with the exception of operational noise at the Midway Substation site, operational noise is predicted to be below Kern County General Plan standards of 65 dBA L_{dn} for exterior noise at residential uses, or nearest noise-sensitive receptor sites, resulting in a less than significant increase in ambient noise levels. However, operational noise from equipment such as transformers at the Midway Substation site may exceed maximum acceptable levels at Buttonwillow Recreation and Park District public recreational facilities and/or residences located within the community of Buttonwillow. Mitigation Measure MM 4.13-4 would ensure that equipment known for increased noise generation, including transformers and inverters, would be adequately shielded as to not allow the ambient noise level received at the nearest off-site sensitive receptor to increase by more than 5 dBA. Similarly, the noise generated by traffic would not raise the ambient noise levels by 3 dBA, as the operational staff would include approximately 50 daily trips to an existing 60,000 ADT roadway baseline. Given the existing 60,000 ADT, an increase by 50 daily trip would be negligible when considering noise perceptibility. Project operations would not increase ambient noise levels in excess of the Kern County General Plan's standard (65 dBA L_{dn}), and it is unlikely that operations of the solar facility and associated infrastructure would be perceptible to the average human ear. Therefore, impacts would be potentially significant warranting implementation of the following mitigation measures.

Mitigation Measures

MM 4.13-1: To reduce temporary construction-related noise impacts, the following shall be implemented by the project proponent/operator:

a. Equipment staging shall be located in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors nearest the project site during construction to the extent practical. The project contractor shall place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site, where feasible.

b. Construction equipment shall be fitted with noise-reduction features such as mufflers and engine shrouds that are no less effective than those originally installed by the manufacturer.

c. During all construction or decommissioning phases of the project, the construction contractor shall limit all on-site noise- producing activities to the hours of 6:00 a.m. to 9:00 p.m. Monday through Friday, and to the hours of 8:00 a.m. and 9:00 p.m. on Saturday and Sunday or as required through the Kern County Noise Ordinance (Kern County Code of Ordinances, Title 8, Chapter 8.36.020).

d. If construction-ground disturbing activities must occur outside of permitted hours per Section 8.36.020 of the Kern County Code, the project proponent/operator shall obtain approval from the development services agency director or designated representative for project construction activities occurring between the hours of 9:00 p.m. to 6:00 a.m. on weekdays and 9:00 p.m. to 8:00 a.m. on weekends, within 1,000 feet of an occupied residential

building, if audible to a person with average hearing ability at a distance of 150 feet from a construction site. As a condition of approval for exempting construction activity outside of permitted hours, the project proponent/operator shall implement a qualified, noise consultant-prepared noise control plan including appropriate noise-reduction measures to the satisfaction of the development services agency director or designated representative, which may include the measures listed above. In addition, the noise control plan may include a requirement to restrict the duration of noise-generating construction activities outside of permitted hours within 1,000 feet of an occupied residential building.

e. Haul trucks shall not be allowed to idle for periods greater than five minutes, except as needed to perform a specified function (e.g., concrete mixing).

f. On-site vehicle speeds shall be limited to 15 miles per hour, or less (except in cases of emergency).

g. Back-up beepers for all construction equipment and vehicles shall be broadband sound alarms or adjusted to the lowest noise levels possible, provided that the Occupational Safety and Health Administration and California Division of Occupational Safety and Health's safety requirements are not violated. On vehicles where back-up beepers are not available, alternative safety measures such as escorts and spotters shall be employed.

MM 4.13-2: The contractor shall establish a Noise Disturbance Coordinator for the project during construction. The Noise Disturbance Coordinator shall be responsible for responding to any complaints about construction noise. The Noise Disturbance Coordinator shall determine the cause of the complaint and shall be required to implement reasonable measures to resolve the complaint. Contact information for the Noise Disturbance Coordinator shall be submitted to the Kern County Planning and Natural Resources Department prior to commencement of any ground disturbing activities.

MM 4.13-3: Prior to commencement of any on-site construction activities (i.e., fence construction, mobilization of construction equipment, initial grading, etc.), including decommissioning, the project proponent/operator shall provide written notice to the public through mailing a notice, which shall include:

a. The mailing notice shall be to all residences within 1,000 feet of the project site, 15 days or less prior to construction activities. The notices shall include the construction schedule and a telephone number and email address where complaints and questions can be registered with the noise disturbance coordinator.

b. A minimum of one sign, legible at a distance of 50 feet, shall be posted at the construction site, or adjacent to the nearest public access to the main construction entrance, throughout construction activities that shall provide the

construction schedule (updated as needed) and a telephone number where noise complaints can be registered with the noise disturbance coordinator.

c. Documentation that the public notice has been sent and the sign has been posted shall be provided to the Kern County Planning and Natural Resources Department.

MM 4.13-4: Adequate noise shielding shall be provided to the project's on-site transformers and inverters such that the existing ambient noise level at the nearest off-site residential structure would not be exceeded by more than 5 dBA. The project proponent/operator shall submit photographic evidence of this technology and clearly demonstrate on a site plan where adequate noise shielding will be located, if necessary. No shielding shall be required if the increase in ambient noise level is 5 dBA or less.

Level of Significance after Mitigation

Impacts would be less than significant.

Impact 4.13-2: Would the Project expose persons to, or generate, excessive ground-borne vibration or ground-borne noise levels?

Construction

The operation of construction equipment and activities could generate and expose persons to excessive ground-borne vibration or ground-borne noise, and if its amplitudes are high enough, ground vibration has the potential to damage structures or cause cosmetic damage (Caltrans 2020). Caltrans has summarized numerous studies on human response to continuous vibration (steady state). As illustrated in **Table 4.13-13:** *Caltrans Human Response to Steady State Vibration*, below, continuous vibration with a PPV of approximately 0.2 ips is considered annoying. For reference, **Table 4.13-14:** *Typical Vibration Levels During Construction*, provides typical vibration levels associated with construction equipment at 100 and 300 feet and, as illustrated, none of the equipment would exceed an ips of 0.2 which would cause annoyance to people. While the majority of sensitive receptors are located at distances exceeding 100 feet, three sensitive receptors are within this distance. There are two sensitive receptors located within 50 feet of the Project site, near Sites 5 and 6, and one sensitive receptor within 100 feet of Site 6. Based on the 2020 Caltrans Transportation and Construction Vibration Guidance Manual, a Vibratory roller is expected to generate 0.210 ips at a distance of 25 feet, and because ground-borne vibration attenuates rapidly even over short distances, it is not expected that construction equipment would exceed 0.2 ips at 50 feet, where the nearest sensitive receptors are located. Therefore, construction activities would not generate excessive ground-borne vibration and impacts would be less than significant.

Table 4.13-13: Caltrans Human Response to Steady-State Vibration

PPV (ips)	Human Response
3.6 (at 2 Hz)–0.4 (at 20 Hz)	Very disturbing
0.7 (at 2 Hz)–0.17 (at 20 Hz)	Disturbing

Table 4.13-13: Caltrans Human Response to Steady-State Vibration

PPV (ips)	Human Response
0.10	Strongly perceptible
0.035	Distinctly perceptible
0.012	Slightly perceptible
0.4–0.6	Unpleasant
0.2	Annoying
0.1	Begins to annoy
0.08	Readily perceptible
0.006–0.019	Threshold of perception

Source: Caltrans 2020

Key: Hz = define; ips = define; PPV = peak particle velocity

Table 4.13-14:Typical Vibration Levels During Construction

Equipment	PPV (inches/second)	
	At 100 feet	At 300 feet
Bulldozer (Large)	0.011	0.006
Bulldozer (Small)	0.0004	0.00019
Loaded Truck	0.01	0.005
Jackhammer	0.005	0.002
Vibratory Roller	0.03	0.013
Caisson Drilling	0.01	0.006

Source: Caltrans 2020

Key: PPV = peak particle velocity

Operation

Once operational, the proposed Project would not be expected to feature major producers of ground-borne vibration. Anticipated mechanical systems like heating, ventilation, and air-conditioning units are designed and manufactured to feature rotating (fans, motors) and reciprocating (compressors) components that are well-balanced with isolated vibration within or external to the equipment casings. On this basis, potential ground-borne vibration and ground-borne noise magnitudes due to project operation would not be anticipated to exceed Caltrans standards.

Decommissioning

At such time the proposed Project is decommissioned, equipment operation and site restoration activities would create temporary vibration in the immediate vicinity. Given the fact that much of the construction equipment necessary to construct the proposed Project would also be required to decommission the site, it is reasonable to assume that decommissioning activities would be similar in nature to the proposed Project construction activities. Therefore, ground-borne vibration impacts resulting from project construction, operation and decommissioning would be less than significant.

Midway Substation Upgrades

As described above in Impact 4.13-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation.

The operation of construction and decommissioning equipment and activities could generate and expose persons to ground-borne vibration or ground-borne noise and, if its amplitudes are high enough, ground vibration has the potential to damage structures or cause cosmetic damage (Caltrans 2020). Buildings associated with the Buttonwillow Recreation and Park District public recreational facilities are located approximately 100 feet (at the closest point) from the Midway Substation site. As stated above, continuous vibration with a PPV of at least approximately 0.2 ips is considered annoying; however, typical vibration levels associated with construction equipment at 100 feet or further is unlikely to exceed an ips of 0.2. The closest residential structures are located approximately 400 feet from the Midway Substation site and, consequently, would experience vibration impacts that are less than those that could be expected to occur at the Buttonwillow Recreation and Park District recreational facilities.

Similar to other operational features of the proposed Project, the Midway Substation upgrades would not involve substantial production of ground-borne vibration as they would involve the use of equipment that is well-balanced with isolated vibration within, or external to, the equipment casings.

Summary

The proposed Project would create less than significant impacts regarding exposure of persons to, or the generation of, excessive ground-borne vibration or ground-borne noise levels.

Mitigation Measures

No mitigation measures would be required.

Level of Significance after Mitigation

Less than significant.

Impact 4.13-3: Would the Project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Given that both construction and decommissioning activities would be limited in duration, construction- and decommissioning-related activities do not have the potential to contribute to a permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Operational activities would be limited to 35 years and—although not permanent—would be in operation for a sufficient amount of time to be considered "permanent" by those who are exposed to operational noise. As described in Impact 4.13-1 (above), stationary noise sources during operation would include PV solar arrays with associated electrical equipment (such as transformers and inverters), energy storage systems, substations, microwave towers, collector lines, and the operations and maintenance facility.

Noise from the PV panel tracking motors may generate noise of up to 44 dBA at 50 feet and would operate briefly throughout an hour (for example, several minutes per hour) as the sun moves west across the sky for final reset at night to face the eastern sky. By operating only several minutes per hour, the hourly noise level would be negligible at the nearest sensitive receivers. In addition, as observed during a site visit to the area and viewing of existing solar farms in the area, noise levels from PV panel tracking were not detected over the existing ambient noise sources in the area (wind, vehicles, planes, and trains) just outside of the solar farm properties (Dudek 2024). Therefore, noise levels from the PV panels would be less than significant.

In addition, as described in Impact 4.3-1 (above), the gen-tie transmission line would generate noise from the corona effect. Assuming "fair weather" conditions," the corona effect on the gen-tie transmission line would generate a noise level of approximately 20 dBA at a distance of 50 feet (San Luis Obispo County 2011). This is the approximate distance to the nearest residences from the gen-tie route. As observed during a site visit to the area and transmission lines from existing solar farms in the area, noise levels from these transmission lines were not detected over the existing ambient noise sources in the area (wind, vehicles, planes, and trains) just outside of the solar farm properties (Dudek 2024). Therefore, per site observations and the general low noise of transmission lines, gen-tie noise would not exceed the County's standard of 65 dBA L_{dn} at the nearest residences, and impacts would be less than significant.

PV inverter clusters have the potential to generate noise that exceeds maximum acceptable noise levels for certain receptors (for example, residential uses) depending on the distance between the PV inverter cluster and receptor location. Specifically, as described in Impact 4.3-1, the overall sound power level for a PV inverter cluster is 103.1 dBA, substation transformers is 106.4 dBA, battery energy storage system containers is 120.9 dBA, and medium voltage transformers is 93.4 dBA. Using these sound power levels, the operational noise levels from the Project site would range between 45.0 L_{dn} and 53.8 L_{dn} at the nearest noise-sensitive receptors, as illustrated in **Table 4.13-12:** *Predicted Noise Levels per Activity Phase*. 53.8 L_{dn} is below the Kern County General Plan standard of 65 dBA L_{dn} for exterior noise at the nearest noise-sensitive receptor. Thus,

the predicted aggregate noise emission associated with operation of on-site equipment, including the inverter/transformer platforms, battery storage container cooling units, and the collector substation, is anticipated to be compliant with County standards, and impacts would be less than significant.

The proposed Project would require an operational staff of up to 20 full-time employees, generating approximately 50 daily trips (one incoming and one outgoing trip per employee). While the Noise Technical Report assumed a total of 50 ADT, the Transportation Impact Study (Appendix K), identifies a total of 40 ADT, concluding a conservative approach that is slightly over the estimated ADT. This difference is negligible, and 10 ADTs would not make a noticeable difference as it is unlikely to result in a 3 dB increase. In addition, these trips would be spread out over the Project site, which would further decrease their potential to create a 3 dB increase. Therefore, noise impacts associated with operational-related traffic would be less than significant.

Midway Substation Upgrades

As described above in Impact 4.13-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation.

Most noise generated from operation of the Midway Substation upgrades is unlikely to exceed maximum acceptable noise levels for noise-sensitive receptors located at the Buttonwillow Recreation and Park District public recreational facilities and residences within the Buttonwillow community. However, the Midway Substation upgrades will involve the use of new transformers which could generate noise that has the potential to exceed maximum acceptable noise levels. Therefore, Mitigation Measure MM 4.13-4 should be implemented to shield the transformers and ensure that noise is attenuated so as not exceed maximum acceptable noise levels. Further, O&M of the Midway Substation upgrades will not require an increase in employees and a corresponding increase in traffic that could result in a significant increase in traffic-generated noise.

Summary

As discussed above, except for the operation of certain equipment at the Midway Substation site, operational noise is predicted to be below Kern County General Plan standards of 65 dBA L_{dn} for exterior noise at residential uses, or nearest noise-sensitive receptor sites, resulting in a less than significant increase in ambient noise levels. However, operational noise from equipment such as transformers at the Midway Substation site may exceed maximum acceptable levels at Buttonwillow Recreation and Park District public recreational facilities and/or residences located within the community of Buttonwillow. Mitigation Measure MM 4.13-4 would ensure that equipment known for increased noise generation, including transformers and inverters, would be adequately shielded as not to allow the ambient noise level at the nearest off-site sensitive receptor to increase by more than 5 dBA. Similarly, the noise generated by traffic would not raise the ambient noise levels by 3 dBA, as the operational staff would include approximately 50 daily trips

to an existing 60,000 ADT roadway baseline. Therefore, impacts would be potentially significant warranting implementation of Mitigation Measure 4.13-4 (above).

Mitigation Measures

Implement Mitigation Measure 4.13-4, as described above.

Level of Significance after Mitigation

Less than significant.

Impact 4.13-4: For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the Project expose people residing or working in the Project site to excessive noise levels?

The Project site is not located within 2 miles of a public airport or private airstrip. As discussed in Section 4.9, *Hazards and Hazardous Materials*, the nearest public airport to the Project site is the Elk Hills-Buttonwillow Airport, approximately 5 miles (at the closest point, excluding the Midway Substation site which is discussed below) southwest of the Project site boundary. Additionally, the Project site is not located within any safety or noise contour zone for either airport and is not located within a designated Kern County ALUCP. No impact would occur.

Midway Substation Upgrades

The nearest airport to the Midway Substation site is the Elk Hills – Buttonwillow Airport, located at Buttonwillow, California, approximately 3.5 miles south/southwest of the proposed Project site. The Midway Substation site is not located within any safety or noise contour zones for the Elk Hills – Buttonwillow Airport or any other airport and is not within a designated airport land use plan area.

Summary

The proposed Project is not located within any safety or noise contour zones for airports, any designated airport land use plan areas, or 2 miles of a public airport or public use airport. Therefore, there would be no impact.

Mitigation Measures

No mitigation measures would be required.

Level of Significance after Mitigation

Not applicable—no impacts would occur.

4.13.5 Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

Noise attenuates geometrically with distance; therefore, potential cumulative noise impacts are highly dependent on a common studied off-site receptor being exposed to one or more nearby projects and the proposed Project. There are six known projects (that is, currently under review or proposed to be under construction and operating at the same time as the Project-related construction or operational activities) within one mile of one or more receptors studied and, therefore, are included in the analysis of potential cumulative noise impacts (Dudek 2024).

Similar to the noise impacts from the proposed Project construction phases to cause a logarithmically summed noise exposure at the noise-sensitive receptors, construction activities at other project sites also would contribute their noise-emission levels logarithmically at noise-sensitive receptors. The magnitude of acoustic contribution from concurrent construction at one or more project sites depends on their activity intensity and distance. Assuming comparable construction intensity, vehicles, and typical heavy equipment listed and discussed above, the Noise Technical Report considered the projects that have the potential to contribute to noise impacts to sensitive receptors that the proposed Project would affect. Specifically, the analysis evaluated the following, six projects, which included a recreational vehicle park, the construction and operation of a 200 MW solar and battery storage facility, a biogas upgrading facility, a warehouse development, a change in use from a restaurant to a truck fueling station, and a truck stop:

- The recreational vehicle park is located approximately 1,200 feet from the nearest Project site and, as such, construction noise exposure from the proposed Project would be less than the acoustic centroid values appearing in **Table 4.13-11:** *Predicted Construction Noise Levels per Activity Phase*, and the corresponding estimated acoustic contribution from the proposed Project. Construction noise likely would be negligible—even if the same set of noise-emission sources as the proposed Project construction phase, at a distance of one mile, or four times the distance between the proposed Project construction activity and the receptor, the level would be at least 12 dB less. Hence, the added effect of the other project would not be cumulatively considerable.
- The solar and battery storage facility is approximately a mile north of the nearest project acre and projected to make a negligible contribution to noise impacts, due to this distance.
- The biogas upgrading facility is about 3,300 feet north of the nearest sensitive receptor and is more than a mile from the nearest Project site, thereby making a negligible contribution to noise impacts from the proposed Project.
- The warehouse development project is located 3,300 feet from the nearest sensitive receptor and approximately 1,300 feet east of the Project site. As such, construction noise likely would be negligible—even if the same set of noise-emission sources as the proposed Project construction phase occurs, given the distance of one kilometer, or over two times the distance between the project construction activity and the closest receptor.

- The truck fueling project is 7,000 feet from the nearest sensitive receptor, and adjacent to the proposed Project. At this distance and given the type and amount of noise-generating activity that would occur, contributions to noise impacts from this project would be negligible.
- The truck stop project is 6,000 feet from the nearest sensitive receptor and adjacent to the proposed Project. At this distance and given the type and amount of noise-generating activity that would occur, contributions to noise impacts from this project would be negligible.

Cumulative construction projects may also result in the exposure of people to or the generation of excessive ground-borne vibration. However, due to the distances between projects, and the rapid attenuation of ground-borne vibration, the proposed Project and the nearest related project are not in close enough proximity to this sensitive receptor such that it would be exposed to substantial ground-borne vibration levels. Decommissioning activities would result in similar noise and vibration levels identified for the construction of the proposed Project.

Midway Substation Upgrades

As described above in Impact 4.13-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation.

The Midway Substation site is not located within proximity to other projects included in the analysis of cumulative impacts, such that the noise or vibration generated from Midway Substation construction, operational, and/or decommissioning activities could combine with noise or vibration generated from other projects, as heard or otherwise experienced from a sensitive receptor location. The closest project included in the analysis of cumulative impacts is located approximately 2.6 miles, or approximately 14,197 feet, from the Midway Substation site.

Summary

As described above, the proposed Project in combination with other projects included in the analysis of cumulative impacts would not create a significant cumulative impact regarding ground-borne vibration. With respect to operational noise, due to the distance of the nearest sensitive receptor to the nearest cumulative project, cumulative impacts associated with operational noise from these facilities are anticipated to be negligible and well under ambient noise levels.

Mitigation Measures

Implement Mitigation Measures MM 4.13-1 through MM 4.13-4.

Level of Significance after Mitigation

Impacts would be less than significant.

Section 4.14

Public Services

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Section 4.14
Public Services

4.14.1 Introduction

This section of the Draft Environmental Impact Report (EIR) describes the affected environment and regulatory setting for public services, which includes fire protection, law enforcement services, schools, and emergency medical services. This section also describes the impacts on the aforementioned public services that would result from the implementation of the proposed Buttonbush Solar and Storage Project (proposed Project) and identifies mitigation measures to reduce or eliminate adverse impacts. Information for this section is derived from numerous sources, including online service provider information and plans, where applicable.

4.14.2 Environmental Setting

Kern County (County) is geographically California's third largest county, encompassing 8,161 square miles at the southern end of the Central Valley. The county is bounded by Kings, Tulare, and Inyo Counties to the north; Santa Barbara and San Luis Obispo Counties to the west; San Bernardino County to the east; and Los Angeles and Ventura Counties and the northern boundary of the Los Padres National Forest, to the south.

Fire Protection

The Kern County Fire Department (KCFD) provides primary fire protection services, fire prevention, emergency medical, and rescue services ŧ for the 8,000 square miles of unincorporated areas of Kern County and the cities of Arvin, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco (KCFD 2025a). KCFD has 47 full-time fire stations and one seasonal station. KCFD is broken into seven battalions for operational management; each battalion covers a separate geographical area and includes seven to nine fire stations. In total, KCFD provides fire protection services for citizens living in cities of Arvin, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco, as well as 500,000 citizens living in unincorporated areas of Kern County. As of 2024, there are seven battalions, 47 fire stations, 58 engines, six ladder trucks, 54 patrols, 30 command vehicles, two hand crews, two helicopters, three hazardous materials response teams, two technical rescue teams, and one oil fire foam tender (KCFD 2025a).

The Project site is located within a Local Responsibility Area (LRA) (CAL FIRE 2025) and, therefore, the KCFD is responsible for wildland fire in these areas. The KCFD Wildland Fire Management Plan designates the Project site as being located within an Agriculture/Non-Wildland zone (KCFD 2009). According to the 2025 CAL FIRE the proposed Project is located approximately 7.75 miles southwest of a High Fire Hazard Severity Zone (FHSZ) in a State Responsibility Area (SRA) and is located entirely within an LRA (CAL FIRE 2024). (**Figure 4.18-1:** *Fire Hazard Responsibility Areas* in Section 4.18, *Wildfire*). As illustrated, a small portion of Site 8 is classified as LRA Moderate FHSZ, and the remainder of the Project site is outside of the designated FHSZs. Moderate zones are typically wildland supporting areas of low fire frequency and relatively modest fire behavior. Unzoned designation areas indicate that the area is generally urbanized and not susceptible to wildland conflagrations.

According to the KCFD's 2025 Strategic Fire Plan, the Project site is within the service areas of Battalion 2, Western Kern, and Battalion 3, Northern Kern (KCFD 2025b). The County applies and uses the National Fire Code set forth by the National Fire Protection Association, the California Fire Code, the California Building Code, and the Kern County Ordinance Code to regulate fire safety.

The Kern County Emergency Medical Services Division (EMS) is the lead agency for the EMS system in Kern County and is responsible for coordinating all system participants in the County, which includes the public, fire departments, ambulance companies, other emergency service providers, hospitals, and emergency medical technician training programs throughout Kern County. EMS includes a system of services organized to provide rapid response to serious medical emergencies, including immediate medical care and patient transport to a hospital setting. EMS covers day-to-day emergencies, disaster medical response planning and preparation, and preventive health care. EMS also provides certification and recertification for emergency medical technicians, paramedics, specialized nurses, and specialized dispatchers. The closest hospital to the Project site is the North Kern Hospital, located at 2101 7th Street, Wasco, approximately 9.86 miles northeast of the Project site. The next closest hospital to the Project site is the Mercy Hospital Southwest–Bakersfield, located at 400 Old River Road, Bakersfield, approximately 18.91 miles southeast of the Project site.

Kern County Fire Station 25 is the closest fire station to the Project site, which is approximately one mile (at the closest point) west of the Project site at 100 Mirasol Ave. Buttonwillow, California 93206. An inventory of fire facilities in the Project site is provided in **Table 4.14-1:** *List of Nearby Fire Stations*. The table identifies each type of facility, the name and address of the facility, and the approximate distance from the Project site.

Table 4.14-1. List of Nearby Fire Stations

Agency	Facility	Address	Approximate Distance from Project Site
KCFD	Station No. 25	100 Mirasol Avenue, Buttonwillow, California 93206	1.0 mile south
KCFD	Station No. 31	2424 7th Street, Wasco, California 93280	9.77 miles northeast
KCFD	Station No. 32	325 Sunset Avenue, Shafter, California 93263	8.61 miles northeast

KCFD has 14 Mutual Aid Agreements with neighboring fire suppression organizations to further strengthen the emergency services available to residents.

The "Kern County Fiscal Year 2024–2025 Recommended Budget" provides recommended funds for the KCFD, which is approximately $260,034,258 and is a 20.3 percent increase from the Fiscal Year 2023-2024 adopted appropriations (Kern County 2024). The 2024–2025 Recommended Budget continues to make funding of the KCFD a top priority in Kern County. The adopted budget was $217,772,643.

Law Enforcement Protection

Kern County Sheriff's Office

The Kern County Sheriff's Office (KCSO) provides basic law enforcement services to the unincorporated portions of the county and has a contract arrangement with some incorporated areas. The Kern County Sheriff is the County's chief law enforcement officer. The KCSO has 1,202 sworn and civilian employees with 567 authorized deputy sheriff positions deployed in patrol, substation, detective, courts services, and special investigations units (KCSO 2025a). The Kern County Sheriff's headquarters is located in the City of Bakersfield and consists of 15 substations that provide patrol services to remote areas of Kern County, such as the desert and mountainous regions, as well as other areas that need law enforcement services. The Buttonwillow substation is the closest to the Project site located approximately 1 mile south of the Project site. Other substations near the Project site are the Wasco substation and the KCSO's Headquarters. Information on the three closest substations to the Project site is included in **Table 4.14-2:** *List of Nearby Police Substations*.

Table 4.14-2. List of Nearby Police Substations

Agency	Facility	Address	Approximate Distance from Project Site
KCSO	Buttonwillow	181 E 1st Street, Buttonwillow, California 93206	1.0 mile south
KCSO	Wasco	748 F Street, Wasco, California 93280	10.08 miles northeast
KCSO	Kern County Sheriff's Office	1350 Norris Road, Bakersfield, California 93308	1 mile southeast

The KCSO strives to respond to calls as quickly as possible. Life-threatening calls that involve a danger to someone's personal safety are given priority. Response time is defined as the time required to respond to a call for service, measured from the time a call is received until the time a patrol car arrives at the scene. The average response times for the KCSO are 7 minutes, 24 seconds for emergency in-progress calls (for example, a crime that is under way and/or a life-or-death situation), 14 minutes, 25 seconds for non-emergency in-progress calls (for example, a crime that has already occurred and/or an incident that is not life-threatening), and 28 minutes, 23 seconds for report calls (reporting a crime that is not in progress) (Pruitt 2014).

Response time to an emergency at or near the Project site would vary depending on the level of demand at the substation at the time of the call. If demand is high, the response time would be longer than the average times given above. The response time for a non-emergency call could be 8 minutes or more, depending on staffing and the number of other calls for service.

The "Kern County Fiscal Year 2024–2025 Recommended Budget" (Kern County 2024) shows a $38,442,399, or 3.5 percent, decrease in the County's General Fund from Fiscal Year 2023-2024. The 2024–2025 Recommended Budget continues to make funding of the Sheriff's Department, District Attorney's Office, the Public Defender's Office, the Probation Department, and the Fire Department a top priority (Kern County 2024). The total General Funds balance available was $167,262,396.

Off-Highway Vehicle Enforcement Team

In 2000, the KCSO created the Off-Highway Vehicle (OHV) Enforcement Team that can be deployed to off-road riding areas and adjacent communities in Kern County, as needed. The goal of the OHV Enforcement Team is to provide a safe and secure environment for the OHV community and nearby residents, and to help protect sensitive natural resources. Kern County attracts over 800,000 visitors a year to the local OHV riding. The OHV Enforcement Team patrols numerous off-road riding areas in Kern County. The OHV Enforcement Team works closely with officers from the Bureau of Land Management (BLM), California State Parks, and other local law enforcement agencies (KCSO 2025b).

California Highway Patrol

The California Highway Patrol (CHP) provides traffic regulation enforcement, oversees response to emergency incidents on California's highways or assists other public agencies responding to emergency incidents, and promotes the safe and efficient movement of people and goods on California highways to minimize loss of life, injuries, and property damage. CHP officers patrol state highways and implement the CHP's other law enforcement activities (for example, drug interception, vehicle theft investigation and prevention, vehicle inspections, accident investigations, and public awareness campaigns), with the support of the non-uniformed personnel assigned to area and division offices.

The CHP has eight divisions that provide services throughout California. Kern County is located in both the Central and Inland Division service areas (CHP 2025). The CHP has three offices in the vicinity of the Project site which are part of the CHP's Central Division, including one in the City

of Bakersfield, one in the community of Buttonwillow, and one in Lebec, an unincorporated community. The Central Division includes the San Joaquin Valley and extends south into the Grapevine, a portion of Interstate 5 that climbs out of the San Joaquin Valley and into the Los Angeles Basin (CHP 2025).

4.14.3 Regulatory Setting

Federal

No federal regulations, plans, or standards regarding public services apply to the proposed Project.

State

California Fire Code

The 2022 California Fire Code (Title 24, Part 9 of the California Code of Regulations [CCR]) establishes the minimum requirements consistent with nationally recognized good practices to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures and premises, and to provide safety and assistance to fire fighters and emergency responders during emergency operation. Chapter 6 (Building Services and Systems) of the Code focuses on building systems and services as they relate to potential safety hazards and when and how they should be installed. Building services and systems that are addressed include emergency and standby power systems, electrical equipment, wiring and hazards, and stationary storage battery systems. Chapter 33 (Fire Safety During Construction and Demolition) of the Code outlines general fire safety precautions to maintain required levels of fire protection, limit fire spread, establish the appropriate operation of equipment and promote prompt response to fire emergencies. Features regulated include fire protection systems, fire fighter access to the site and building, means of egress, hazardous materials storage and use and temporary heating equipment and other ignition sources.

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CAL FIRE) protects the people of California from fires, responds to emergencies, as well as protects and enhances forest, range, and watershed values providing social, economic, and environmental benefits to rural and urban citizens. CAL FIRE's firefighters, fire engines, and aircraft respond to an average of nearly 6,000 wildland fires each year. The Office of the State Fire Marshal supports CAL FIRE's mission by focusing on fire prevention. It provides support through a wide variety of fire safety responsibilities including by providing statewide direction for fire prevention in wildland areas; by regulating hazardous liquid pipelines; by reviewing regulations and building standards; and by providing training and education in fire protection methods and responsibilities.

Under Title 14 of CCR, CAL FIRE has the primary responsibility for implementing wildfire planning and protection for SRAs. CAL FIRE develops regulations and issues fire-safe clearances for land within a fire district of the SRA. More than 31 million acres of California's privately-owned wildlands are under CAL FIRE's jurisdiction.

CAL FIRE adopted FHSZ maps for SRAs in 2025. FHSZ is a way to classify fire zones based on factors that influence the likelihood of fire and its behavior to help inform mitigation measures such as home hardening or fuel reduction efforts.

In addition to wildland fires, CAL FIRE's planning efforts involve responding to other types of emergencies that may occur on a daily basis, including residential or commercial structure fires, automobile accidents, heart attacks, drowning victims, lost hikers, hazardous material spills on highways, train wrecks, floods, and earthquakes. Through contracts with local government, CAL FIRE provides emergency services in 36 of California's 58 counties.

California Occupational Safety and Health Administration

In accordance with CCR, Title 8, Sections 1270, Fire Prevention, and 6773, Fire Protection and Fire Equipment, the California Occupational Safety and Health Administration has established minimum standards for fire suppression and EMS. The standards include, but are not limited to, guidelines on the handling of highly combustible materials, fire hosing sizing requirements, restrictions on the use of compressed air, access roads, and the testing, maintenance, and use of firefighting and emergency medical equipment.

Local

Construction and operation of the proposed Project would be subject to applicable policies and regulations including those contained in the Kern County General Plan (KCGP), Kern County Zoning Ordinance, and the Kern County Code of Building Regulations, which include policies, goals, and implementation measures related to public services. The policies, goals, and implementation measures in the KCGP related to public services that are applicable to the solar field and energy storage are provided below. The KCGP contains additional policies, goals, and implementation measures that are more general in nature and not specific to development, such as the proposed Project. These measures are not listed below, but as stated in Chapter 2, *Introduction,* all policies, goals, and implementation measures in the KCGP are incorporated by reference.

Kern County General Plan

The proposed Project is located within the KCGP area and, therefore, would be subject to applicable policies and measures of the KCGP. The Land Use, Conservation, and Open Space Element and the Safety Element of the KCGP include goals, policies, and implementation measures related to public safety that apply to the proposed Project, as described below.

Chapter 1. Land Use, Conservation, and Open Space Element

1.4.1. Public Facilities and Services

Goals

Goal 1. Kern County residents and businesses should receive adequate and cost-effective public services and facilities. The County will compare new urban development proposals and land use changes to the required public services and facilities needed for the project.

Policies

Policy 1. New discretionary development will be required to pay its proportional share of the local costs of infrastructure improvements required to service such development.

Policy 3. Individual projects will provide availability of public utility service as per approved guidelines of the serving utility.

Policy 6. The County will ensure adequate fire protection to all Kern County residents.

Policy 7. The County will ensure adequate police protection to all Kern County residents.

Implementation Measures

Implementation Measure A. Continue to administer the Capital Improvement Program (CIP) and coordinate with public utility providers listing the necessary improvements to Kern County's public services and facilities in collaboration with key service providing agencies and the County Administrative Office as a first step toward the preparation of a long-term Public Services Plan for Kern County. This plan addresses the projected demand for public services throughout the County in comparison with projected revenues and identifies long-term financial trends for the major public service providers. The CIP and General Plan can assure compliance with the provisions of Government Code Sections 65401 and 65402 which require review of all capital facility decisions for consistency with this General Plan.

Implementation Measure B. Determine local costs of County facility and infrastructure improvements and expansion which are necessitated by new development of any type and prepare a schedule of charges to be levied on the developer at the site of approval of the Final Map. This implementation can be effectuated by the formation of a County work group.

Implementation Measure L. Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in the County shall not be approved unless adequate fire protection facilities and resources can be provided.

1.10. General Provisions

Goals

Goal 1. Ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.

1.10.1. Public Services and Facilities

Policies

Policy 9. New development should pay its pro rata share of the local cost of expansions in services, facilities, and infrastructure which it generates and upon which it is dependent.

Policy 15. Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the California Environmental Quality Act (CEQA) documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.

Policy 16. The developer shall assume full responsibility for costs incurred in service extensions or improvements that are required to serve the Project. Cost sharing or other forms of recovery shall be available when the service extensions or improvements have a specific quantifiable regional significance.

Chapter 4. Safety Element

4.6. Wildland and Urban Fire

Policies

Policy 1. Require discretionary projects to assess impacts on emergency services and facilities.

Policy 3. The County will encourage the promotion of fire prevention methods to reduce service protection costs and costs to taxpayers.

Policy 4. Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.

Policy 6. All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.

Implementation Measures

Implementation Measure A. Require that all development comply with the requirements of the KCFD or other appropriate agency regarding access, fire flows, and fire protection facilities.

Kern County Fire Code

Kern County has adopted, by reference, portions of the California Building Standards Code and the Uniform Fire Code, with modifications and amendments, in Chapter 17.32 of the Kern County Code of Building Regulations (Fire Code). The purpose of this code is to prescribe the minimum requirements necessary to establish a reasonable level of fire safety to protect life and property from hazards created by fire, explosion, and dangerous conditions.

The Kern County Fire Code defines a hazardous fire area as any land that is covered with grass, grain, brush, or forest and situated (for example, in an inaccessible location) so that a fire originating upon such land would present an abnormally difficult job of suppression and would result in extensive, unusual damage through fire or the resulting erosion.

Kern County Fire Department Strategic Fire Plan

The KCFD Unit Strategic Fire Plan is an annual strategic fire plan updated in 2025 and assesses the wildland fire situation throughout the SRA within the county. Similar to other plans, this document includes stakeholder contributions and priorities, and identifies strategic targets for pre-fire solutions as defined by the people who live and work within the areas of local fire risk. The plan is designed to be an assessment and planning tool only and is the responsibility of those implementing the projects to ensure that all environmental compliance and permitting processes are met as necessary (KCFD 2025b). The goal of the plan is to reduce costs and losses from wildfire by protecting assets at risk through focused pre-fire management prescriptions and increasing initial attack success. Utilization of computer-based data and geographic information systems provide a framework for comprehensive analysis of fire hazards, assets at risk, and level of service to be included in the Wildland Fire Management Plan. The KCFD Strategic Fire Plan will systematically assess the existing levels of wildland protection services and identify high-risk and high-value areas that are potential locations for costly and damaging wildfires. The KCFD Strategic Fire Plan will then rank the areas in terms of priority needs and prescribe what can be done to reduce future costs and losses. Additionally, the plan provides an annual report of unit accomplishments, which, in 2020, included completion of Kern County Winter Burning Project, Bear Valley Road Brushing Project, and South Frazier Fuel Break Project. Work was continued on Alta Sierra Fuel Modification Project and Kern River Valley Communities Protection Project hired a contractor and began work on updating the Kern County Community Wildfire Protection Plan (CWPP) and conducted numerous “Chipper Days” throughout Kern County. The CWPP gives an overview of KCFD Battalions and ranks these areas in terms of priority needs as well as identifies the areas of SRA. According to the plan, 69 percent of Kern County areas are within a SRA. The county is broken up into six different fuel management areas, Tehachapi, Western Kern, Northern Kern, Mt. Pinos Communities, Kern River Valley, Valley, and Military Base.

Kern County Multi-Jurisdiction Hazard Mitigation Plan

The multi-hazard mitigation plan evaluates the risks associated with seismic events, dam failure, severe weather, and wildfire on oil and gas facilities among other hazards. The purpose of the multi-hazard mitigation plan is to reduce or eliminate the long-term risk to people and property from natural hazards and their effects in the county. The 2019–20 Update to the plan is to help Kern

County become less vulnerable to losses from future disasters (KCFD 2020). The multi-jurisdictional plan includes the county and the incorporated municipalities of Arvin, Bakersfield, California City, Delano, Maricopa, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco. The county also encompasses areas of land controlled by federal and state land management agencies, including the CAL FIRE, BLM, and Bureau of Reclamation. While other levels of government have jurisdiction in these parts of the county, the Hazard Mitigation Plan could also be used to document and coordinate mitigation efforts among federal, state, and local jurisdictions. This plan also covers 49 special districts that include school, airport, community service, water, recreation and park, sanitation, and other districts (KCFD 2020).

Fire Prevention Standard No. 1204-2 Solar Panels

The KCFD Fire Prevention Division adopted Standard No. 1204-2 Solar Panels Ground Mounted (Commercial) on May 25, 2023. The standard is implemented in accordance with the 2022 CFC and Kern County Ordinance and is an official interpretation of the Kern County Fire Marshal's Office. The standard outlines installation requirements for commercial ground-mounted photovoltaic solar panels. Requirements state that for systems of one MW or larger, fire protection water shall be provided for the ground mounted solar systems, which is determined by the structure size and location in wildland areas. Vegetation shall have a minimum clearance of 10 feet around the project perimeter and shall be maintained to a height of 6 inches or less. The standards also include perimeter and internal road widths for fire apparatus, including approved materials for driving surface and minimum separations between solar panel array blocks. The proposed Project involves mounting systems for the modules on steel support posts that would be pile-driven into the ground and, therefore, would comply with the ground-mounted requirements of this fire prevention standard. Ground-mounted solar panel requirements of this standard include water supply, clearance and combustibles, stationary storage battery energy storage systems (BESSs), clean agent system permits, fire extinguisher placement, and emergency vehicle access (KCFD 2023).

4.14.4 Impacts and Mitigation Measures

Methodology

The methodology used to evaluate potential public services impacts includes the following: (1) evaluation of existing fire and police services and personnel for the fire and law enforcement stations serving the Project site, (2) determination of whether the existing fire and law enforcement services and personnel are capable of servicing the proposed Project, in addition to the existing population and building stock, and (3) determining whether the proposed Project's contribution to the future service population would cause fire or police station(s) to operate beyond service capacity. The environmental analysis considers whether the provision of new services for the proposed Project will result in significant, adverse indirect impacts to the physical environment (for example, adverse impacts to the physical environment due to the construction and/or use of new facilities that are required to increase services).-The methodology for this analysis included a review of published information pertaining to KCFD and KCSO. The contribution of the proposed Project through established property tax revenues was reviewed to fully document the proposed Project's

contribution to all government services and facilities that provide for stability in communities and prevent decline of the communities' physical neighborhoods.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the *CEQA Guidelines*, to determine if a project could potentially have a significant adverse effect on public services.

A project could have a significant adverse effect on public services if it would:

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

   i. Fire Protection

   ii. Police Protection

   iii. Schools

   iv. Parks

   v. Other Public Facilities

Prior to the preparation of this Draft EIR, on April 18, 2024, Kern County issued a Notice of Preparation (NOP) prepared for the proposed Project (Appendix A). The purpose of the NOP is to describe the proposed Project, specify the project location, and identify potential environmental impacts pursuant to CEQA Guidelines Appendix G. The Initial Study evaluated the above CEQA criteria and determined that the proposed Project has the potential for significant impact on (i) Fire Protection, (ii) Police Protection, and (v) Other Public Facilities. The Initial Study checklist also determined that the project would have no impact on (iii) Schools or (iv) Parks because there are no schools in the Project vicinity and the proposed Project would not result in substantial increase in population that would increase the utilization of public parks and recreational facilities. Therefore, those two criteria have not been brought forth for further analysis in this Draft EIR, and they are not included as part of the impact analysis.

Project Impacts

Impact 4.14-1: Would the Project result in the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection services or police protection services?

Fire Protection

Construction and Decommissioning

As described in Chapter 3, *Project Description,* it is estimated that an average of up to 800 workers per day with up to 1,334 workers during peak construction periods would be required during construction of the proposed Project. The presence of the construction workers would be temporary, and the proposed Project would likely be built in up to five distinct phases over the course of approximately five years.

According to CAL FIRE's Kern County Fire Hazards Severity Zone Maps for the Local Responsible Areas, a small portion of Site 8 is classified as LRA Moderate FHSZ, and the remainder of the Project site is outside of the designated FHSZs. (CAL FIRE 2025). Moderate zones are typically wildland supporting areas of low fire frequency and relatively modest fire behavior. Unzoned areas are generally urbanized and not susceptible to wildland conflagrations. The proposed Project would comply with all applicable wildland fire management plans and policies established by CAL FIRE and the KCFD. Accordingly, the proposed Project is not expected to expose people or structures to a significant risk of loss, injury, or death involving wildland fires (see Section 4.18, *Wildfire*). Fire protection facilities requirements are based on the number of residents and workers in the KCFD service area. Service demand is primarily tied to population, not building size, because emergency medical calls typically make up the majority of responses which the KCFD provides. As the number of residents and workers increase, so do the number of emergency medical calls. There are no residential uses proposed as part of the proposed Project. Therefore, no residents would occupy the Buttonbush Solar and Storage Project site, and an increase in service demands as a result of an increase in residential uses would not occur.

Construction and decommissioning (removal of the facility) of the proposed Project would temporarily increase the number of people on the Project site. As a large-scale construction project, service demand from the proposed Project would increase the demand for KCFD for fire protection and emergency medical services. While this could be an increase above existing levels, the presence of construction workers on the site would be temporary, as the construction and decommissioning period for the proposed Project are temporary.

The Project proponent's engineering, procurement, and construction contractor would implement measures for worker safety during construction pursuant to California Division of Occupational Safety and Health regulations and guidance and other best management practices. For example,

prior to initiation of construction activities, workers would be trained in emergency procedures, fire prevention, and location and proper use of emergency equipment. Although construction would be limited, fire hazards from the proposed Project would potentially increase the need for fire response or emergency services during the construction period. Among potential fire hazards are events resulting from hot work operations, which produce sparks, heat, or open flames that could ignite combustibles present on the Project site, as well as the presence of power generators, where there are opportunities for electrical faults to occur. These fire hazards could increase the demand for fire response and emergency services, and is considered a potentially significant impact.

Mitigation Measure MM 4.14-1 would require the Project proponent to prepare and implement a fire safety plan that would contain notification procedures and emergency fire precautions consistent with the 2022 California Fire Code and Kern County Fire Code. The Fire Safety Plan would apply during the construction and decommissioning periods and would include emergency fire precautions for vehicles and equipment, as well as implementing fire rules and trainings so employees are equipped to support handling fire threats. Given that the construction and decommissioning periods would be limited, impacts regarding fire protection services and facilities during project construction would be less than significant with implementation of Mitigation Measure MM 4.14-1.

Operation

The proposed Project includes six locations for up to four operation and maintenance (O&M) buildings less than 3,600 sf. in size, with associated on-site parking. During the operational phase, the proposed Project would employ up to 20 full-time equivalent (FTE) personnel who would commute to the site's O&M buildings. The O&M buildings would house the proposed Project's electronic controls and communications systems; provide storage for tools, maintenance supplies, and spare parts; and provide on-site office, kitchen, and bathroom facilities for operations staff. Plastic or steel above-ground water storage tanks would be placed on-site near each O&M building. The storage tanks near the O&M buildings would be sized in accordance with Kern County and fire department requirements and have the appropriate fire department connections to be used for fire suppression purposes.

The proposed facilities would generate energy and operate seven days a week, with daily planned monitoring and maintenance activities taking place during daytime business hours. Forced outage situations, where the proposed facilities have unexpectedly stopped normal operations, could occur during the operations period requiring immediate action. Forced outages consist of unexpected failures in proposed Project equipment or facilities, which require immediate inspection, repair, restoration, replacement, and/or modification. In general, employees would be responsible for activities such as cleaning photovoltaic (PV) panels, monitoring electricity generation, providing site security, and facility maintenance, which may consist of replacing or repairing inverters, wiring, and PV modules. Thus, the proposed Project would not change existing demand for fire protection services because operation of the proposed Project would not result in a substantial increase in employees or populations. Therefore, the proposed Project would not substantially increase the need for new fire department staff or new facilities.

Battery components for the proposed energy storage component of the proposed Project would be equipped with appropriate fire suppression systems and electrical control units. All battery enclosures would be equipped with fire safety and protection systems compliant with applicable U.S. national safety standards and codes such that fire hazards would be reduced and/or avoided.

While service demand would not increase, O&M activities could introduce fire risks to the Project site from maintenance vehicles. Planned maintenance would include repair, restoration, replacement or repair, washing solar panels, and modification work, which could introduce flammable materials to the Project site and create fire hazards. Additionally, unplanned maintenance activities may be required due to unexpected damage to, or failure of, equipment or facilities, which may include fire risks associated with damaged or failed equipment. These fire hazards could increase demand for fire response and emergency services, thereby requiring additional facilities the construction and use of which could result in adverse physical impacts to the environment, are potentially significant impacts. However, all maintenance activities would be required to comply with the Fire Safety Plan implemented per Mitigation Measure MM 4.14-1, which would help reduce fire risks on-site. In addition, all project facilities would be designed and constructed in accordance with the California Fire Code and Kern County Fire Code such that fire hazards would be reduced and/or avoided.

Furthermore, the Project operator would be required to pay a Kern County Cumulative Impact Charge (CIC), through implementation of Mitigation Measure MM 4.14-2. Payment of the CIC would provide funding for the County budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the County would otherwise receive for services and facilities, thereby supporting the provision of adequate public services and facilities, thereby supporting the provision of adequate public services and facilities. Therefore, potential operational impacts on fire protection services would be reduced to less than significant with implementation of Mitigation Measure MM 4.14-1 and Mitigation Measure MM 4.14-2, and the proposed Project would not result in the need for new or physically altered KCFD facilities.

Law Enforcement Protection

Construction and Decommissioning

As described above in Section 4.14.2, *Environmental Setting*, the KCSO provides primary law enforcement protection services for the Project site and surrounding areas. The nearest KCSO substation is the Buttonwillow substation located at 100 Mirasol Ave., Buttonwillow, CA 93206, approximately 1.0-mile south of the Project site. Similar to fire protection services, the need for police protection services would potentially increase during construction of the proposed Project.

During construction, the proposed Project could attract vandals or present other security risks, such as theft or destruction of equipment and materials used in construction. Fences would be installed around the perimeter of each site, substation, and other areas requiring controlled access for safety and security purposes. Fencing would comply with all applicable requirements of the Kern County Public Works Department/Building Inspection Division. The fencing would remain for the life of

the proposed Project. Thus, through implementation of safety and security measures on the Project site, a substantial increase for KCSO services is not expected.

As discussed in Section 4.15, *Transportation and Traffic*, construction activities are expected to increase traffic volumes along I-5 during the construction period, as described in the Transportation Impact Study prepared for the proposed Project (Appendix K of this Draft EIR). The added traffic associated with workers commuting to the Project site, haul routes, deliveries, and other Project-related traffic would be temporary; therefore, the proposed Project would not have a significant adverse effect on the provision of law enforcement protective services or CHP's ability to patrol the highways or require additional facilities to maintain service.

Additionally, chain-link fencing would be installed around the perimeter of the main Project site to encircle the solar panels, BESS, and other project infrastructure. The fencing would ensure access to the site is controlled to authorized personnel only and help ensure safety of the facilities as well as on-site workers. All fencing will comply with all applicable requirements of the Kern County Public Works Department/Building Inspection Division.

Although project construction and decommissioning would increase the number of personnel on the Project site, the increase would be temporary, and the proposed Project would not substantially increase the potential for crime or events necessitating law enforcement services. Therefore, new or physically altered KCSO or CHP facilities would not be required to accommodate the temporary and limited increase in needs from the proposed Project during construction. Impacts to law enforcement services during project construction would be less than significant.

Operation

Project operation could attract vandals or present other security risks such as theft or destruction of equipment and materials. As described above, the Project site would be enclosed by chain-link fencing with barbed wire measuring up to eight feet in height. Furthermore, the proposed Project may include additional security measures including, but not limited to, barbed wire, low voltage fencing with warning reflective signage, controlled access points, security alarms, security camera systems, and security guard vehicle patrols to deter trespassing and/or unauthorized activities that could interfere with operation of the proposed Project. The security fencing and additional security measures would minimize the need for KCSO surveillance and response during project operation. The additional volume of vehicles associated with workers commuting to the Project site during routine maintenance is not expected to significantly impact traffic (see Section 4.15, *Transportation*, for more details). Therefore, significant impacts to CHP patrol are not anticipated.

The proposed Project could incrementally increase demand for services, such as increased police presence, leading to the potential degradation of existing facilities and warranting the development of new facilities, the construction and/or use of which could adversely affect the physical environment. Therefore, Mitigation Measure 4.14-2 requires that the proposed Project pay required property taxes, as the solar property tax exclusion is set to expire on January 1, 2027. If the exclusion is extended, Mitigation Measure MM 4.14-2 also requires the proposed Project to provide CIC funding. Payment of the CIC would support the County budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes that the

County would otherwise receive for services and facilities and thus ensuring the provision of adequate public services and facilities. With the implementation of Mitigation Measure MM 4.14-2, no new or physically altered law enforcement facilities would be required to accommodate the proposed Project. Substantial adverse physical impacts associated with the construction of new or physically altered facilities in order to maintain acceptable service ratios would not occur with project implementation. Therefore, impacts to law enforcement protection resulting from project operation would be less than significant with implementation of Mitigation Measure MM 4.14-2.

Other Public Facilities

Construction

As described above, up to 800 workers per day with up to 1,334 workers during peak construction periods would be required during construction of the proposed Project. The presence of construction workers at the Project site would be temporary (estimated to be five years or less). These workers would likely come from an existing local and/or regional construction labor force and likely would not relocate their households due to this employment opportunity. If temporary housing should be necessary, it is expected that there is adequate availability of hotel accommodations to handle the increase. Therefore, the short-term increase in construction workers would not result in a notable increase in the residential population of the area surrounding the Project site, and thus would not appreciably increase the demand for local recreational, medical, academic, and/or other public services. Impacts during construction would be less than significant.

Operation

The proposed facilities would operate seven days a week, with daily monitoring and maintenance activities, both planned and unplanned, taking place during daytime and nighttime hours. As indicated above, the proposed Project would employ up to 20 FTE personnel.

Operation of the proposed Project could increase demand for local recreational, medical, academic, and/or other public services should it result in a substantial increase in population. However, employees serving the proposed Project would likely come from an existing local and/or regional labor force and would not likely relocate their households as a consequence of working on the proposed Project. Therefore, staff required during operation would not increase demand for local public facilities such that substantial physical deterioration of such facilities would occur, nor would project construction require the construction or expansion of public facilities (for example, recreational facilities) which might have an adverse effect on the environment. Substantial adverse physical impacts associated with the construction of new or physically altered facilities in order to maintain acceptable service ratios would not occur with proposed Project implementation.

Additionally, utility-scale solar facilities are currently excluded from property taxes on facility equipment. This property tax exclusion can result in a project not providing the revenue needed to provide services and facilities for both the proposed Project and the community that can prevent physical deterioration of public facilities. If the land were built with another type of land use, it would produce property tax revenue to maintain and/or provide new facilities for public services to address items such as code enforcement, law enforcement, roads, and health and safety. The

solar property tax exclusion has been extended several times since it was approved by California voters in 1980 and, unless further extended, it is currently set to be repealed on January 1, 2027. As discussed above, if the property tax exclusion continues to be excluded from required taxes, Mitigation Measure 4.14-2 would require payment of CIC. Public policies in the KCGP require development to address economic deficiencies in public services and facilities costs.

While the proposed Project is not expected to result in adverse impacts associated with the construction of new or physically altered park, school, or community facilities, the proposed Project may result in incremental increases in demands on local medical, and/or other public facilities, resulting in the degradation of these facilities. Therefore, Mitigation Measure MM 4.14-2 would require appropriate payment to fund the County budget for services that are not funded due to the State of California Active Solar Energy Exclusion provision on property taxes, in which the County would otherwise receive and assure the provision of adequate public services and facilities. As such, Mitigation Measure MM 4.14-2 requires payment of a CIC calculated on net acreage that exclused permanent structures or energy storage not covered under property tax reduction (O&M building and energy storage system) and legally unbuildable land (recorded easements or on-site conservation areas), unless the property tax exclusion is repealed. The charge factor is calculated based on the fair share under the Government Code that the proposed Project would have paid if the Tax Exclusion were not in effect. The amount the proposed Project should pay is calculated as $690 per net acre annual charge. This is in addition to the normal property tax revenue legally assessed on the property as the fair share that is provided to the Kern County General Fund. The amount would be paid for all years of operation, through implementation of Mitigation Measure MM 4.14-3. In addition, if the proposed Project is sold to a city, county, or utility company with assessed taxes that total less than $3,000 per megawatt per year, that entity would pay the taxes plus the amount necessary to equal the equivalent of $3,000 per megawatt, per MM 4.14-3. Furthermore, through implementation of Mitigation Measure MM 4.14-4, the Project proponent/operator would work with the County to determine how the use of sales and use taxes from construction of the proposed Project can be maximized to support the community, including local services. Additionally, with implementation of Mitigation Measure MM 4.14-5, the Project operator would submit a letter detailing the hiring efforts prior to commencement of construction, which encourages all contractors working on the Project site to hire at least 50 percent of their workers from local Kern County communities. Implementation of Mitigation Measure MM 4.14-2 through Mitigation Measure MM 4.14-5 would reduce impacts to other public services to a level that is less than significant.

PG&E Midway (Midway) Substation Upgrades

The proposed Project includes enlarging the Midway Substation's 500-kV yard within the Pacific Gas & Electric (PG&E)-owned Midway Substation property boundaries. The Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities as part of the proposed Project. PG&E may install two four-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest of the Midway Substation property. Other activities include: installing up to nine, 67.5 cubic feet underground substructure vaults along the conduit trenches;

removing an existing precast security wall at the northwest side of the Midway Substation and replacing it with a new 12-foot wall; grading of the connection area; installing approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker; equipment foundations and concrete trenches; equipment cabinets; bus structures; communication lines; conduits; pull boxes; and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the Point of Change of Ownership for the proposed Project. Up to four approximately 175-foot-tall lattice steel towers or tubular steel poles would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads. For a detailed description of the Midway Substation upgrades, see Section 3.0, *Project Description.*

The Midway Substation upgrades would comply with all applicable wildland fire management plans and policies established by CAL FIRE and the KCFD and, therefore, are not expected to expose people or structures to a significant risk of loss, injury, or death involving wildland fires. Construction and decommissioning (removal of the facility) of the proposed Project would temporarily increase the number of workers on the Project site. However, the increase in number of workers would be temporary and is unlikely to substantially increase the demand for KCFD for fire protection and emergency medical services. Further, as described above, construction activities must comply with Occupational Safety and Health regulations and guidance. However—although construction activities would be limited—fire hazards from construction activities at the Midway Substation site would potentially increase the need for fire response or emergency services during the construction period thereby warranting implementation of Mitigation Measure MM 4.14-1.Operations of the Midway Substation are not anticipated to substantially increase the number of workers within the PG&E parcels. The proposed Project is anticipated to require 20 FTE for the entire Project site, and the upgrades within the PG&E Midway Substation would require similar operations and maintenance of the existing facility. Furthermore, PG&E has adopted Best Management Practices (BMPs) (Appendix M) that apply to all PG&E projects, which include several BMPs that reduce the risk of fire (BMP 24 through 27). Any operational work associated with the upgrades would have negligible impacts on fire protection services. During construction, operation, and decommissioning, the proposed Project could attract vandals or present other security risks at the Midway Substation. However, construction would be temporary and includes the installation of a 12-foot security fence with controlled access. Once constructed, fencing would ensure only authorized personnel have access to the area, reducing the need for additional police services to the area.

Summary With implementation of Mitigation Measures 4.14-1 through MM 4.14-5, proposed Project impacts regarding fire and police protection and services would be less than significant.

Mitigation Measures

MM 4.14-1: Prior to the issuance of grading or building permits the project proponent/operator shall develop and implement a fire safety plan for use during construction, operation and decommissioning.

The project proponent/operator shall submit the plan, along with maps of the project site and access roads, to the KCFD for review and approval. A copy of the approved Fire Safety Plan shall be submitted to the Kern County Planning and Natural Resources Department. The Fire Safety Plan shall contain notification procedures and emergency fire precautions including, but not limited to, the following:

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

b. Light trucks and cars with factory-installed (type) mufflers shall be used only on roads where the roadway is cleared of vegetation. These vehicle types will 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 to prevent them from growing into more serious threats.

f. The project proponent/operator shall make an effort to restrict the use of chainsaws, chippers, vegetation masticators, grinders, drill rigs, tractors, torches, and explosives to periods outside of 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.

g. Building plans shall be included for the energy storage system to verify adherence to County and California Building Code standards.

MM 4.14-2:

a. The project shall pay all legally required property taxes; or

b. If the project qualifies, based on State Legislative action and the State Board of Equalization guidance, for any reduction in property taxes under a Solar Tax Exclusion or other specific property tax relief for solar or battery storage regardless of the name, then the following Cumulative Impact Charge (CIC) shall apply. The first annual payment is to be paid by

December 31 of the year the first legislatively provided property tax reduction is assessed, and annually every year for the life of the project, or as a lump sum for multiple years, until the project is decommissioned and the Conditional Use Permit is voided.

1. Submittal of Building Permit or Calculation of Amount
    A. Any building permit or calculation of amount submitted shall be accompanied by a map and legal description of the entire approved Conditional Use Permit area.
    B. The map shall calculate the CIC net acreage as follows:
        1. Total gross acreage of the approved Conditional Use Permit.
        2. Total acres of recorded easements.
        3. Delineation of any permanent structures or energy storage that is not covered under a property tax reduction and evidence from legislation or State Board of Equalization that they have no reduction in taxes.
    C. Formula is Net Acreage = B.1 minus B.2 and B.3, if applicable.
    D. Temporary storage areas or non-permanent commercial coaches or cargo containers for construction or operations are not eligible for inclusion under B.3, above.
    E. All areas of buildings, accessory improvements and easements used in the calculations shall be shown on the submitted Map.
2. Calculation of Cumulative Impact Charge (CIC) and annual payment
    A. A payment of $690 per net acre shall be paid annually for all acres in the approved Conditional Use Permit regardless of phased implementation of building permits, the total number of building permits, or type of building permit issued.
    B. The first annual payment is to be paid by December 31 of the year the first property tax reduction is assessed. If it is not paid by December 31 of that year, then a notice of violation of the Conditional Use Permit shall be filed and the procedure in Chapter 19.114 shall commence immediately under the authority of the Director.
    C. Annual payments are due every year on the date of the first payment.
    D. Payments shall be made to the Planning and Natural Resources Department for transfer directly to the County Administrative Office Fiscal Division (CAO) and labeled Cumulative Impact Charge (CIC) with the project name, location and APNs.
    E. An advance payment option for a lump sum of all payment years, or a reduction in each year's payment for five or more years, may be requested by submittal of a written request to the Planning and Natural Resources Department with details of the offer no later than 60 days

before the annual payment is due. A 10% discount in the lump sum amount will be applied if the advance payment option is accepted by the County Administrative Office Fiscal Division (CAO) by written response.

MM 4.14.-3: Written verification of ownership of the proposed project shall be submitted to the Kern County Planning and Natural Resources 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 total less than $3,000 per megawatt per year, then a Supplemental Cumulative Impact Charge (SCIC) shall be paid for the difference annually up to $3,000 per megawatt. The SCIC payments shall be made annually directly to the County Administrative Office (CAO) Fiscal Division and labeled "Supplemental Cumulative Impact Charge (SCIC)" with the project name and phase number. The fee shall be paid to the Kern County Auditor/Controller by April 30 of each calendar year.

MM 4.14-4: The project proponent/operator shall work with the County to determine how the use of sales and use taxes from construction of the project can be maximized. This process shall include, but is not limited to, the project proponent/operator obtaining a street address within the unincorporated portion of Kern County for acquisition, purchasing and billing purposes, and registering this address with the State Board of Equalization. As an alternative to the aforementioned process, the project proponent/operator may make arrangements with Kern County for a guaranteed single payment that is equivalent to the amount of sales and use taxes that would have otherwise been received (less any sales and use taxes actually paid); with the amount of the single payment to be determined via a formula approved by Kern County. The project proponent/operator shall allow the County to use this sales tax information publicly for reporting purposes.

MM 4.14-5: Prior to the issuance of any building permits on the property, the project operator shall submit a letter detailing the hiring efforts prior to commencement of construction, which encourages all contractors of the project site to hire at least 50 percent of their workers from local Kern County communities. The project operator shall provide the contractors a list of training programs that provide skilled workers and shall require the contractor to advertise locally for available jobs, notifying the training programs of job availability, all in conjunction with normal hiring practices of the contractor.

Level of Significance after Mitigation

Less than significant.

4.14.5 Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

Cumulative impacts are two or more individual impacts that, when considered together, are considerable or that compound or substantially increase other environmental impacts. Cumulative impacts for a project are considered significant if the incremental effects of the individual projects are considerable when viewed in connection with the effects of past projects, and the effects of other projects located in the vicinity of the Project site. The cumulative impact analysis area for public services includes the service areas for each of the fire, police, and other governmental offices/facilities serving the Project site. For both the KCSO and the KCFD, service areas comprise unincorporated areas of Kern County. As discussed above, the proposed Project would incrementally increase demand for certain public services which would be in addition to cumulative increases in demand for such services resulting from past, present, and reasonably foreseeable projects (**Table 3-5:** *Cumulative Projects*, in Chapter 3, *Project Description*). The proposed Project's increased demand for local recreational, medical, academic, and/or other public facilities, would result in cumulatively considerable contributions to significant cumulative impacts regarding these services.

However, fire and sheriff service impacts related to the proposed Project would be less than significant with mitigation. Mitigation Measure MM 4.14-1 requires implementation of a fire safety plan during project construction and operation that would include notification procedures and emergency fire precautions to help reduce fire risks and the consequential need for fire protection services on-site. Mitigation Measure MM 4.14-2 requires the Project proponent to pay a CIC, or property taxes to reduce significant impacts to fire or law enforcement protection services resulting from the proposed Project. With payment of the required CIC assessed by the Kern County Planning and Natural Resources Department, or property tazes, Project-generated demand for additional fire or law enforcement protection services, facilities, or personnel required would be appropriately funded. Mitigation Measure MM 4.14-5 would reduce the proposed Project's impact on public services by efforts to employ at least 50 percent of the workers from local Kern County communities, which would thereby not increase the demand on public services. Similarly, all other past, present, and reasonably foreseeable future projects located within these fire and law enforcement service areas, and subject to the CIC requirements, paid or must pay this CIC fee. Projects that are deemed likely to have significant environmental impacts would be required to undergo environmental review, in compliance with the requirements of CEQA. Should potential impacts to public services be identified, appropriate mitigation would be required to reduce impacts to less than significant levels on a project by project basis.

The proposed Project would result in an incremental increase in demand to local public services, resulting in the potential degradation of local facilities. With the implementation of the described mitigation measures, the proposed Project would comply with the goals, policies, and implementation measures of the KCGP. The other related projects would also be expected to avoid or mitigate impacts on public services, and cumulatively significant impacts would be less than significant. Therefore, the proposed Project's incremental effect is not cumulatively considerable

when viewed in connection with the effects of other closely related past projects, the effects of other current projects, and the effects of probable future projects. The proposed Project would not make a cumulatively considerable contribution to a significant cumulative impact related to public services with the incorporation of Mitigation Measure MM 4.14-1 through Mitigation Measure MM 4.14-5.

Midway Substation Upgrades

As described above in Impact 4.14-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation.

Construction and decommissioning would increase the number of workers to the site, thereby increasing the potential need for fire response to the site in the event of a fire. However, the upgrades would comply with all applicable wildland fire management plans and policies established by CAL FIRE and the KCFD. Operations related to the upgrades within the Midway Substation are not anticipated to require a significant amount of additional FTE employees to the site, as the entire Project site would require 20 FTE for the operations and maintenance of the entire facilities within the Project site. Furthermore, PG&E has adopted BMPs that reduce the risk of fire (BMP 24 through 27), further reducing the risk of fire and need for fire protection services.

During construction, operation, and decommissioning, the proposed Project could attract vandals or present other security risks at the Midway Substation. However, construction would be temporary and includes the installation of a 12-foot security fence with controlled access. Once constructed, fencing would ensure only authorized personnel have access to the area, reducing the need for additional police services to the area.

Summary

The proposed Project would not make a cumulatively considerable contribution to a significant cumulative impact involving fire and police response capacities. With implementation of Mitigation Measure MM 4.14-1 through 4.14-5, the proposed Project would not make a cumulatively considerable contribution to significant cumulative impacts.

Mitigation Measures

Implement Mitigation Measures MM 4.14-1 through MM 4.14-5, as described above.

Level of Significance after Mitigation

Less than significant.

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Section 4.15

Transportation

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Section 4.15
Transportation

4.15.1 Introduction

This section of the Draft Environmental Impact Report (EIR) describes the environmental and regulatory setting for transportation and traffic. It also describes the transportation-related impacts that would result from implementation of the proposed Buttonbush Solar and Storage Project (proposed Project).

Information contained within this section was primarily derived from the *Traffic Impact Study* (TIS) (Dudek 2025) included as Appendix K of this Draft EIR. The TIS evaluated both: (1) impacts regarding vehicle miles traveled (VMT) as required pursuant to the State California Environmental Quality Act (CEQA) Guidelines (Section 15064.3); and (2) impacts involving traffic congestion, which as discussed further below are not considered "environmental impacts" pursuant to CEQA, but are included for the purpose of evaluating the proposed Project's consistency with the policies of the Kern County General Plan (KCGP). The TIS analyzed the existing and existing plus project traffic conditions. Potential traffic impacts to intersections and roadways were determined for both development/construction and operation of the proposed Project using the most recently published roadway traffic volumes and Project-related vehicle trip calculations. Discussion and evaluation of transportation facilities, including pavement conditions, are based on-site surveys with applicable thresholds and impacts identified. Impacts regarding airports are discussed in Section 4.9, *Hazards and Hazardous Materials*.

4.15.2 Environmental Setting

The Project site is located on approximately 11,983 acres in the Central Valley Region of Kern County, approximately four miles west of the City of Bakersfield, two miles west of the City of Shafter, and approximately seven miles southwest of the City of Wasco. The Project site straddles and crosses Interstate 5 (I-5), is east of Buttonwillow Raceway Park, just north of State Route (SR) 58, and south of Kimberlina Road.

As described in Chapter 3, *Project Description*, depending on the destination within the Project site, Wasco Way, Merced Avenue, Lerdo Highway, Rowlee Road, Wildwood Road, Riverside Street, Burbank Street, Buttonwillow Drive, 7th Standard Road, Snow Road, SR-58, and Sullivan Road would provide access to the Project site. Major components of the circulation system are discussed below and shown in **Figure 3-2 (A-F):** *Project Site Boundaries*, and **Figure 3-11 (A-P):** *Proposed Site Plan*, in Chapter 3, *Project Description*, of this Draft EIR.

Regional and Local Roadway Facilities

Regional access to the site would be provided from I-5 and SR-58, with local access from Wasco Way, Merced Avenue, Lerdo Highway, Rowlee Road, Wildwood Road, Buttonwillow Drive, 7th Standard Road, Snow Road, and Sullivan Road as shown in Chapter 3, *Project Description*, **Figure 3-2 (A-F):** *Project Site Boundaries*. These roadways are described below.

Regional Roads

I-5 (from the north and south) and SR-58 (from the east and west) would provide regional access to the Project site.

I-5 is a divided, four-lane freeway located mostly on the western portion of the site. I-5 is a major interstate freeway that begins near the Mexico-US Border and extends to the Canada-US Border, and serves as a critical connection for many other regional roadways, freeways, and highways. The nearest interchanges to the site are provided at I-5 and Lerdo Highway, I-5 and Buttonwillow Road, I-5 and 7th Standard Road, and I-5 and SR-58/Hageman Road. The posted speed limit is 65 miles per hour (mph).

SR-58 (Rosedale Highway/Mojave Freeway) begins in San Luis Obispo County, enters Kern County near McKittrick, and runs east through Bakersfield and Mojave to the County boundary past Boron, ending in San Bernardino County. The right-of-way varies between two and four lanes. The posted speed limit approaching Buttonwillow is 45 mph.

Local Roads

County-maintained roads that are expected to provide access to the Project site and also serve as links to regional roadways, include Lerdo Highway, and 7th Standard Road as an east to west connector. Rowlee Road runs north to south and intersects I-5, W. Lerdo Highway, 7th Standard Road, and SR-58. These roadways all operate with two lanes within the vicinity of the Project site.

Lerdo Highway

Lerdo Highway is an east-west, two-lane, undivided, county-maintained highway, located in the northern portion of the Project site. It is an undivided rural road with paved shoulders. No pedestrian or bicycle facilities are present. The posted speed limit is 55 mph.

Buttonwillow Drive

Buttonwillow Drive is a north-south, two-lane, undivided roadway, located in the eastern portion of the Project site. It is an undivided roadway with paved shoulders north of SR-58, and unpaved shoulders south of SR-58. There are no pedestrian or bicycle facilities present. The posted speed limit is 55 mph starting approximately 0.30 miles north of 4th Street, and 30 mph for approximately 1.65 miles from the end of the 55 mph zone to Buerkle Road.

Wildwood Road

Wildwood Road is a north-south, two-lane, undivided roadway, located in the northeastern portion of the Project site. It is an undivided rural road with no paved shoulders, and no pedestrian or bicycle facilities are present. There is no posted speed limit.

Wasco Way—Rudnick Road

Wasco Way—Rudnick Road is a north-south, two-lane, undivided roadway that begins as the I-5 southbound off-ramp, and then runs parallel to I-5. It is located in the western portion of the Project site. The shoulder is unpaved, no pedestrian or bicycle facilities are present, and there is no posted speed limit.

Hageman Avenue

Hageman Avenue is an east-west, two-lane, undivided roadway that begins at the eastern terminus of SR-58, at the southern edge of the Project site. It is a rural roadway with paved shoulders. There are no pedestrian or bicycle facilities present. The posted speed limit is 55 mph.

Tracey Avenue

Tracey Avenue is a north-south, two-lane, undivided roadway that connects 7th Standard Road to Hageman Road, and is located in the southern portion of the Project site. Tracey Avenue provides access to and from I-5 via an on- and off-ramp. The shoulder is unpaved, no pedestrian or bicycle facilities are present, and there is no posted speed limit.

7th Standard Road

7th Standard Road is an east-west, two-lane, undivided roadway located centrally in the Project site. It is an undivided rural road with paved shoulders. There are no pedestrian or bicycle facilities present, and the posted speed limit is 55 mph.

Magnolia Avenue

Magnolia Avenue is a north-south, two-lane, undivided roadway located in the eastern portion of the Project site. The shoulder is unpaved, there are no pedestrian or bicycle facilities present, and there is no posted speed limit.

Merced Avenue

Merced Avenue is an east-west, two-lane, undivided roadway located in the northern portion of the Project site. The shoulder is unpaved, there are no pedestrian or bicycle facilities present, and there is no posted speed limit.

Rowlee Road

Rowlee Road is a north-south, undivided, two-lane, undivided roadway. There are paved shoulders north of Lerdo Highway, and unpaved shoulders south of Lerdo Highway. There are no pedestrian or bicycle facilities present, and there is no posted speed limit.

Other Transportation Facilities

Railways

Amtrak provides passenger rail service from the City of Bakersfield north to the City of Sacramento via the San Joaquin train service (Amtrak 2024).

The San Joaquin Valley Railroad provides freight service throughout the San Joaquin Valley and interchanges with the Union Pacific Railroad and the Burlington Northern Santa Fe Railroad in Bakersfield. The San Joaquin Valley Railroad transports commodities such as petroleum and agricultural products (Kern COG 2011).

Public Transit Service

Kern Transit provides passenger bus service between and in the rural communities of Kern County. There are 16 fixed transit routes, and Dial-A-Ride service is available in most communities. However, the proposed Project is located in a rural and mostly agricultural area with limited transit. Route 120 is the nearest bus route to the site with service provided on SR-58 (Stockdale Highway) and SR-43 approximately 6 miles southeast of the Project limits. Route 120 provides service between Taft and Bakersfield.

Non-motorized Transportation

According to the 2018 Kern Region Active Transportation Plan (Kern COG 2018), the existing bicycle infrastructure network is disconnected with gaps in areas surrounding the Project site. In Buttonwillow, Shafter, and Wasco, there are a total of 20 miles of bike paths, although not continuous. In Shafter, there is an east-west Class III bike lane on Seventh Standard Road; however, it terminates approximately 6 miles east of the Project site. There are planned Class III Bike Routes along Wasco Way, adjacent to portions of the Project site which terminate at Seventh Standard Road. Significant gaps remain in the existing bicycle network; network improvements are required to provide connectivity for active transportation.

Similar to the Kern County region's existing bikeway network, the region's pedestrian facilities are disconnected with varying conditions. In cities with pedestrian infrastructure, some locations have a comprehensive sidewalk network with mid-block crossings, flashing beacons, and signage, while others have only limited interconnected sidewalks and safe infrastructure. For example, the community of Buttonwillow, located less than one-mile south of Site 1, has crosswalks and pedestrian paths that connect to public uses such as parks, and includes pedestrian lighting. However, in residential areas, sidewalks are fragmented with many gaps.

There are no existing pedestrian or bicycle facilities in the immediate vicinity of the Project site, or along the surrounding roadways. The nearest existing bicycle route is located at Seventh Standard Road, which terminates approximately 6 miles east of the Project boundary. Given the Project site's location in a rural area, pedestrian and bicycle traffic is limited.

Aircraft and Military Aviation

Public Airports

The nearest public airports are the Elk Hills – Buttonwillow Airport, located in Buttonwillow, California, approximately 3.5 miles (at the closest point) south of the proposed Project site, and the Wasco-Kern County Airport located at 14101 Airport Rd, Wasco, CA 93280, California 93263, approximately 7.8 miles (at the closest point) northeast of the proposed Project site. The proposed Project site is not located within any safety or noise contour zones for these airports or within any designated airport land use plan areas, as discussed in Section 4.9, *Hazards and Hazardous Materials*).

Private Airports

A number of private airstrips are located throughout western Kern County, including Tejon Ag and Paradise Lakes airfields south of Bakersfield, Majors Airfield north of Bakersfield, Joe Gottlieb Field Airport west of Bakersfield, and Cashen Airport northwest of Wasco. There are no private airports within the vicinity of the Project site (AirNav n.d.).

Military Aviation

Kern County has two military aviation installations: the China Lake Naval Air Weapons Station and Edwards Air Force Base, both of which are located in the eastern part of the county. Nearby, in Kings County, is the Lemoore Naval Air Station, located in the central San Joaquin Valley. Each installation has unique flying operations and their primary mission is to test military aircraft and weapon systems. Due to the military bases' required flying mission, aircraft fly beyond the boundaries of the installations at supersonic speeds and sometimes as low as 200 feet above the ground. In order to minimize flight hazards to non-military aircraft, the military aircraft from these installations fly within restricted airspace known as the Joint Service Restricted R-2508 Complex. This complex is considered an extension of the airspace for these military aviation installations and their flying missions. Mojave Air and Space Port and Inyo Kern Airport both provide civilian flight testing and drone testing capabilities. Mojave Air and Space Port is also the first Federal Aviation Administration (FAA) licensed civilian space flight testing facility in the United States. There are no military airports within the nearby vicinity of the Project site (AirNav n.d.).

Study Area Intersections and Roadway Segments

As described further in Section 4.15.3, *Regulatory Setting* (below), impacts regarding level of service (LOS) are not considered "environmental impacts" warranting evaluation pursuant to the CEQA. However, the KCGP Circulation Element includes minimum LOS standards for intersections and highway capacity and, therefore, the proposed Project's impacts regarding LOS were analyzed in the TIS and this Draft EIR for the purpose of assessing project consistency with KCGP Circulation Element policies and standards.

The proposed Project TIS evaluated the following intersections and roadway segments with regard to LOS, a metric for traffic congestion or auto delay, and determine proposed Project consistency with KCGP requirements involving LOS. LOS is used to correlate numerical traffic-volume data with qualitative descriptions of traffic performance at intersections. LOS is based on the capacity of the intersection, the signal timing, and the volume of traffic (turning movements). The LOS ratings used in the KCGP range from LOS A to LOS F as follows:

- LOS A—Free Flow. No approach phase is fully used by traffic and no vehicle waits longer than one red indication. Insignificant delays.
- LOS B—Stable Operation. An occasional approach phase is fully used. Many drivers begin to feel somewhat restricted within platoons of vehicles. Minimal delays.
- LOS C—Stable Operation. Major approach phase may become fully used. Most drivers feel somewhat restricted. Acceptable delays.
- LOS D—Approaching Unstable. Drivers may have to wait through more than one red signal cycle. Queues develop but dissipate rapidly, without excessive delays.
- LOS E—Unstable Operation. Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection. Significant delays.
- LOS F—Forced Flow. Represents jammed conditions. Intersection operates below capacity with several delays; may block upstream intersections. (Kern County 2009).

As discussed in Section 4.15.3, *Regulatory Setting*, the KCGP considers LOS D to be the minimum acceptable LOS within the general plan area for County-maintained roads unless the roads are part of an adopted Community Plan or Specific Plan which utilizes Smart Growth policies that encourage efficient multimodal movements.

The TIS analysis of key intersections involved use of the Synchro 12 LOS software which implements methods of the Highway Capacity Manual, 6th Edition (HCM 6) which describes the operation of an intersection using LOS, based on the corresponding control delay experienced per vehicle for unsignalized intersections. The TIS analyzed the following intersections that are likely to experience Project-generated traffic:

1. Rowlee Road/Merced Avenue (two-way stop-control)
2. I-5 southbound (SB) Ramps /Lerdo Highway (two-way stop-control)
3. I-5 northbound (NB) Ramps/Lerdo Highway (two-way stop-control)
4. Rowlee Road/Lerdo Highway
5. Wildwood Road/Lerdo Highway
6. Buttonwillow Drive/I-5 Northbound On-Ramp
7. Buttonwillow Drive/I-5 SB Off-Ramp – Wasco Way
8. Buttonwillow Drive/7th Standard Road
9. Wasco Way/7th Standard Road

10. I-5 Southbound Ramps/7th Standard Road
11. I-5 Northbound Off-Ramp/7th Standard Road
12. Magnolia Avenue/7th Standard Road
13. Buttonwillow Drive/SR-58
14. Wasco Way/SR-58
15. I-5 Southbound Ramps/SR-58 – Hageman Road
16. I-5 Northbound Ramps/Tracey Avenue
17. Tracey Avenue/Hageman Road

In addition, the following road segments were selected for analysis:

1. Lerdo Highway, east of I-5 Northbound Ramps
2. Buttonwillow Drive, north of I-5 Northbound On-Ramp
3. Buttonwillow Drive, south of I-5 Southbound Off-Ramp
4. 7th Standard Road, west of I-5 Southbound On-Ramp
5. 7th Standard Road, east of I-5 Northbound Off-Ramp
6. Wasco Way, south of 7th Standard Road
7. Hageman Road, west of I-5 Southbound Ramps
8. Hageman Road, east of Tracey Avenue

Existing Levels of Service

As shown in **Table 4.15-1:** *Existing Peak Hours LOS for Intersections*, all study area intersections operate at an acceptable LOS (that is, LOS D or better) during weekday AM and PM peak hours under existing conditions.

Table 4.15-1: Existing Peak Hours LOS for Intersections

Intersection	AM Peak Hour LOS	PM Peak Hour LOS
Rowlee Road/Merced Avenue	A	A
I-5 SB Ramps/Lerdo Highway	B	B
I-5 NB Ramps/Lerdo Highway	B	B
Rowlee Road/Lerdo Highway	A	A
Wildwood Road/Lerdo Highway	A	B
Buttonwillow Drive/I-5 NB On-Ramp3	A	A
Buttonwillow Drive/I-5 SB Off-Ramp – Wasco Way	B	B
Buttonwillow Drive/7th Standard Road	A	A
Wasco Way/7th Standard Road	B	A
I-5 SB Ramps/7th Standard Road	B	B
I-5 NB Off-Ramp/7th Standard Road	B	B
Magnolia Avenue/7th Standard Road	B	B
Buttonwillow Drive/SR-58	B	B
Wasco Way/SR-58	B	B
I-5 SB Ramps/SR-58—Hageman Road	A	B
I-5 NB Ramps/Tracey Avenue	C	D
Tracey Avenue/Hageman Road	B	C

Source: Dudek 2025

Key: I-5 = Interstate 5; SB = southbound; SR-58 = State Route 58; LOS = level of service; NB = northbound

Table 4.15-2: Existing ADT Roadway Segments LOS

Location	Capacity[1]	Existing ADT[2]	Project-Added Trips	Existing Plus Project ADT	V/C Ratio	LOS	LOS D or Better?
Lerdo Highway, east of I-5 NB Ramps	15,000	2,324	164	2,488	0.166	A	Yes
Buttonwillow Drive, north of I-5 NB On.Ramp	15,000	1,356	363	1,719	0.115	A	Yes
Buttonwillow Drive, south of I-5 SB Off-Ramp	15,000	2,039	167	2,206	0.147	A	Yes
7th Standard Road, west of I-5 SB On-Ramp	15,000	2,008	353	2,361	0.157	A	Yes
7th Standard Road, east of I-5 NB Off-Ramp	15,000	3,933	858	4,791	0.319	A	Yes
Wasco Way, south of 7th Standard Road	15,000	258	219	477	0.032	A	Yes
Hageman Road, west of I-5 SB Ramps	15,000	6,365	451	6,816	0.454	A	Yes
Hageman Road, east of Tracey Avenue	15,000	5,012	459	5,471	0.365	A	Yes

Source: Dudek 2025

Notes:

[1] Capacity determined from **Table 4.3-2:** *Roadway Capacities*, per the Metropolitan Bakersfield General Plan Update EIR for 2-lane collector roadways.

[2] Volume provided from ADT counts conducted on July 27, 2023

[3] Intersection Capacity Utilization value used as Highway Capacity Manual does not support all-way, free movements.

Key: ADT = average daily trips; I-5 = Interstate 5; LOS = level of service; NB = northbound; SB = southbound; V/C = volume-to-capacity

4.15.3 Regulatory Setting

Federal

Federal Aviation Administration

The FAA regulates aviation at regional, public, and private airports. The FAA regulates objects affecting navigable airspace. According to 49 Code of Federal Regulations Part 77.9, any person/organization who intends to sponsor any of the following construction or alterations must notify the Administrator of the FAA of:

- Any construction or alteration exceeding 200 feet above ground level;
- Any construction or alteration:

  - Within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway where the longest airport runway exceeds 3,200 feet in actual length;
  - Within 10,000 feet of a public use or military airport which exceeds a 50:1 surface from any point on the runway where the longest airport runway is less than 3,200 feet in actual length; and
  - Within 5,000 feet of a public use heliport which exceeds a 25:1 surface;
- Any highway, railroad, or other traverse way whose prescribed adjusted height would exceed the above standards;
- When requested by the FAA; and
- Any construction or alteration located on a public use airport or heliport regardless of height or location.

Failure to comply with the provisions of Federal Aviation Regulation Part 77 is subject to civil penalty under Section 902 of the Federal Aviation Act of 1958, as amended, and pursuant to 49 United States Code Section 46301(a).

State

California Department of Transportation

The Central Valley and western portions of Kern County (including the Project site and surrounding area) are under the jurisdiction of The California Department of Transportation (Caltrans) District 6. Caltrans has jurisdiction over State highways and sets maximum load limits for trucks and safety requirements for oversized vehicles that operate on highways. Caltrans also has responsibility for establishing State planning priorities in all functional plans, programs, and activities, and coordinates and consults with local jurisdictions when proposed local land use planning and development may impact State highway facilities.

The following Caltrans informed and/or enforced regulations and guidance apply to potential transportation and traffic impacts of the proposed Project:

- **California Vehicle Code (CVC), Division 15, Chapters 1 through 5 (Size, Weight, and Load).** Includes regulations pertaining to licensing, size, weight, and load of vehicles operated on highways (State of California 2025a).
- **California Streets and Highways Code, Sections 660–711, 670–695.** Requires permits from Caltrans for any roadway encroachment during truck transportation and delivery; includes regulations for the care and protection of state and county highways and provisions for the issuance of written permits; and requires permits for any load that exceeds Caltrans weight, length, or width standards for public roadways (State of California 2025b).

- **Project Development Procedures Manual, Chapter 27, Access Control Modification.** Requires Caltrans' approval of proposed connections to a public road through submittal of a proposal to Caltrans (Caltrans 2024).

Senate Bill 743

Senate Bill (SB) 743 was signed into law in September 2013 and included several changes to CEQA for projects located in areas served by transit (for example, transit-oriented development). Most significantly, SB 743 changed the way that transportation impacts are analyzed under CEQA by removing traffic congestion (auto delay) as an "environmental impact" requiring analysis in CEQA environmental documents, and replacing it with a requirement to evaluate VMT. VMT is a measure of the total number of miles driven to or from a development project site; is used as a surrogate for evaluating certain transportation-related greenhouse gas emissions that contribute to anthropogenic induced climate change; and is intended to promote the development of multimodal transportation networks and a diversity of land uses that are strategically located to reduce reliance on single passenger automobile trips as a primary form of transportation.

In order to facilitate the evaluation of VMT-related impacts in CEQA environmental documents, SB 743 directed the California Natural Resources Agency to amend the CEQA Guidelines by excluding LOS and auto delay when evaluating transportation impacts and provide criteria for the evaluation of VMT-related impacts. The CEQA Guidelines amendments were preceded by the Governor's Office of Land Use and Climate Innovation's (LCI's) (formerly the Office of Planning and Research [OPR]) publication of recommendations that are set forth in the *Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA* (OPR 2016). Based (in part) on these recommendations, in December 2018, the California Natural Resources Agency adopted the amendments to the State CEQA Guidelines which are set forth in Section 15064.3(b). Following the adoption of the amendments to the State CEQA Guidelines, LCI published the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR 2018) which provides further guidance regarding the analysis of VMT-related impacts.

To provide further guidance regarding SB 743 implementation, Caltrans replaced the *Guide for the Preparation of Traffic Impact Studies* (Caltrans 2002) with the *Caltrans Transportation Impact Study Guide* (Caltrans 2020a). Per the 2020 *Transportation Impact Study Guide* and consistent with SB 743, Caltrans now focuses on VMT rather than LOS as the metric used in CEQA transportation analyses. Caltrans recommends use of LCI's recommended thresholds and guidance on methods of VMT assessment found in LCI's *Technical Advisory on Evaluating Transportation Impacts in CEQA*. In addition to VMT, Caltrans has developed an *Interim Land Development and Intergovernmental Review Safety Review Practitioners Guidance* (July 2020) which provides direction regarding targeted operational and safety analyses to address specific geometric or operational considerations related to the State Highway System and connections with the State Highway System (Caltrans 2020b).

In summary, LCI's published guidance recommends use of automobile VMT per capita as the preferred CEQA transportation metric, along with the elimination of automobile delay/LOS for CEQA purposes statewide. Although LOS or similar measures of traffic congestion or vehicular

capacity were removed from consideration pursuant to CEQA, SB 743 does not prevent a lead agency from continuing to analyze delay or LOS as part of other plans (for example, a general plan), fee programs, or ongoing network monitoring, so long as the LOS analysis is not a basis for challenging the legal adequacy of an EIR under CEQA (*Citizens for Positive Growth & Preservation v City of Sacramento* (2019) 43 C5th 609, 624). Given that the KCGP (Circulation Element) includes policies that require maintaining an acceptable LOS for County roadways and intersections, an analysis of LOS-related impacts is provided below to inform the analysis of proposed Project consistency with the KCGP.

Local

Kern County General Plan

The Project site is located within an area that is subject to the KCGP and, consequently, applicable KCGP goals, policies, and implementation measures. The Land Use Element, Circulation Element, and the Safety Element of the KCGP include goals, policies, and implementation measures related to transportation and traffic that apply to the proposed Project, as described below.

Chapter 1. Land Use Element

1.5 Special Treatment Areas

Goals

Goal 1. To recognize the validity of existing Specific Plan and Rural Community Plan decisions and to identify areas for which similar detailed planning efforts should be undertaken in the future so as to best meet the needs and concerns of local residents.

Policies

Policy 1. Rural communities are historically identifiable small-scale non-urban settlements located in outlying areas of the County which contain a mixture of residential and supportive commercial and other uses serving the community and the surrounding rural population. The County will ensure that the unique character of these communities is preserved and enhanced by recognizing the scale, density, size, and composition of development as summarized in Appendix B [of the KCGP].

Policy 5. Specific Plan Areas guidelines shall be used to ensure adequate consideration of the General Plan goals and policies governing development and resource management. (These guidelines are presented in Appendix C [of the KCGP].)

Implementation Measures

Implementation Measure A. Where particular policies or standards are not addressed within a Special Treatment Area, the provisions of the Kern County General Plan shall govern.

Chapter 2. Circulation Element

Objectives

Objective 1. To make certain that transportation facilities needed to support development are available. To ensure that these facilities occur in a timely manner so as to avoid traffic degradation.

Objective 5. Maintain a minimum Level of Service (LOS) D for all roads throughout the County.

2.3.3. Highway Plan

Goals

Goal 5. Maintain a minimum LOS D.

Policies

Policy 1. Development of roads within the County shall be in accordance with the Circulation Diagram Map. The charted roads are usually on section and midsection lines. This is because the road centerline can be determined by an existing survey.

Policy 2. This plan requires, as a minimum, construction of local road widths in areas where the traffic model estimates little growth through and beyond 2010. Where the Kern County Planning and Natural Resources Department's growth estimates indicate more than a local road is required, expanded facilities shall be provided. The timing and scope of required facilities should be set up and implemented through the Kern County Land Division Ordinance. However, the County shall routinely protect all surveyed section lines in the Valley and Desert regions for arterial right-of-way. The County shall routinely protect all midsection lines for collector highways in the same regions. The only possible exceptions shall be where the County adopts special studies and where Map Code 4.1 (Accepted County Plan) areas occur. In the Mountain Region where terrain does not allow construction on surveyed section and midsection lines, right-of-way width shall be the size shown on the diagram map. No surveyed section and midsection "grid" will comprehensively apply to the Mountain Region.

Policy 3. This plan's road-width standard is listed below. These standards do not include state highway widths that would require additional right-of-way for rail transit, bike lanes, and other modes of transportation. Kern County shall consider these modifications on a case by-case basis. • Expressway [Four Travel Lanes] Minimum 110-foot right-of-way;

- Arterial [Major Highway] Minimum 110-foot right-of-way;
- Collector [Secondary Highway] Minimum 90-foot right-of-way;
- Commercial-Industrial Street Minimum 60-foot right-of-way; and
- Local Street [Select Local Road] Minimum 60-foot right-of-way.

Implementation Measures

Implementation Measure A. The Planning Department shall carry out the road network policies by using the Kern County Land Division Ordinance and Zoning Ordinance, which implements the Kern County Development Standards (Kern County 2023) that includes road standards related to urban and rural planning requirements. These ordinances also regulate access points. The Planning Department can help developers and property owners in identifying where planned circulation is to occur.

Implementation Measure B. Continuity and integrity of the arterial and collector system at the mountain/valley region and the mountain/desert region boundary must be reviewed and approved in conjunction with project adoption on an individual basis.

Implementation Measure C. Conformance to alignment minimum design standards, where roadways that deviate from section and midsection lines intersect those lines, must be reviewed and approved in conjunction with project adoption on an individual basis.

2.3.4. Future Growth

Goals

Goal 1. To provide ample flexibility in this plan to allow for growth beyond the 20-year planning horizon.

Policies

Policy 2. The County should monitor development applications as they relate to traffic estimates developed for this plan. Mitigation is required if development causes affected roadways to fall below LOS D. Utilization of the CEQA process would help identify alternatives to or mitigation for such developments. Mitigation could involve amending the Land Use, Open Space, and Conservation Element to establish jobs/housing balance if projected trips in any traffic zone exceed trips identified for this Circulation Element. Mitigation could involve exactions to build off-site transportation facilities. These enhancements would reduce traffic congestion to an acceptable level.

Policy 4. As a condition of private development approval, developers shall build roads needed to access the existing road network. Developers shall build these roads to County standards unless improvements along State routes are necessary. If so, roads shall then be built to Caltrans standards. Developers shall locate these roads (width to be determined by the Circulation Plan) along centerlines shown on the circulation diagram map unless otherwise authorized by an approved Specific Plan Line. Developers may build local roads along lines other than those on the circulation diagram map. Developers would negotiate necessary easements to allow this.

Policy 5. When there is a legal lot of record, improvement of access to County, city or State roads will require funding by sources other than the County. Funding could be by starting a local benefit assessment district or, depending on the size of a project, direct development impact fees.

Policy 6. The County may accept a developer's road into the County's maintained road system. This is at Kern County's discretion. Acceptance would occur after the developer follows the above requirements. Roads are included in the County road maintenance system through approval by the Board of Supervisors.

Implementation Measures

Implementation Measure A. The County should relate traffic levels to road capacity and development levels. To accomplish this, the Kern County Roads Department and the Kern County Planning and Natural Resources Department should set up a monitoring program. The program would identify traffic volume to capacity ratios and resulting level of service. The geographic base of the program would be traffic zones set up by Kern Council of Governments.

Implementation Measure C. Project development shall comply with the requirements of the Kern County Zoning Ordinance, Land Division Ordinance, and Development Standards.

2.3.6 Vacation of Existing or Recorded Future Streets, Highways, or Public Easements

Goal

Goal 2. Kern County intends to set up a system maintaining and coordinating road vacation procedures in all elements of the General Plan and the incorporated cities general plans.

Policies

Policy 1. A road vacation influencing the construction or operation of expressway, an arterials or collector highway may occur with, or after, amending this Element. Kern County will not vacate any public expressway, arterial or collector highway right-of-way without amendment to this Element. The County will need to amend the right-of way status to local or commercial-industrial streets.

Policy 2. A study, prepared at the applicant's expense, shall accompany the road vacation application. The study should provide information that will aid in finding the importance of the entire length of the right-of-way. The study would include a review of existing and proposed land uses and localized traffic modeling. This will help Kern County decide what corresponding changes are needed to the Land Use, Open Space and Conservation Element, or affected specific plan. This also will help Kern County decide if additional public road services or other traffic management are required elsewhere.

Policy 3. If the road vacation applicant is a private entity, all costs for the public hearing shall be borne by the applicant. Also, costs associated with providing any necessary additional public road services or other traffic management caused by the road vacation shall be paid by the applicant.

Policy 4. The vacation of a road shall not take away legal access to adjacent properties or "landlock" any legal lot or parcel of record. Legal access shall be determined through a report submitted with the application for road vacation.

Policy 5. If Kern County determines that the right-of-way is not needed for circulation in the general area, a road vacation may be authorized. An acceptable project shall be determined through a report submitted with the road vacation application and in keeping with traffic modeling parameters of this Plan.

Policy 6. A road vacation may be authorized if physical conditions such as natural, or manmade topography prevent rational extension of the facility. Physical conditions affecting roadways shall be determined through a report submitted with the road vacation application.

Policy 7. A road vacation shall only affect public, recorded rights-of-way or public service easements. The potential effects of a road vacation upon rights-of-way and easements are to be determined by a report submitted with the road vacation application. A vacation of private access or private service easement is not under County jurisdiction. Kern County considers these matters "civil" actions. These civil actions should be acted upon accordingly.

Policy 8. A road vacation may be authorized if the right-of-way is not improved or used for its original purpose. Existing improvements and facility use shall be determined by a report submitted with the road vacation application.

Policy 9. A road vacation may be authorized to remove excess right-of-way caused by relocation, or at the beginning of a general plan amendment proceeding. Excess right-of-way shall be determined through a report submitted with the road vacation application.

Policy 10. A road vacation may be approved if there is an agreement to close a public street. A road vacation may be approved with acknowledgment of an impassable street. A road vacation may be approved with a land division map over the area of vacation if the project has comparable methods of vehicular access.

Policy 11. A road vacation procedure may be used for considering public service easement or utility service easement abandonments. The procedure is the same as any public right-of-way vacation.

Policy 12. A vacation of improved road right-of-way, or public service easement, should not occur until the lead agency makes findings. One important finding is the land is no longer needed for public use. A vacation of improved road right-of-way, or public service easement, should not occur until the right-of-way is superseded by relocation, and improved to acceptable Kern County Development Standards. The Board of Supervisors shall have accepted the replacement facility into the maintained road system.

Policy 13. A general vacation proceeding (consistent with State of California Streets and Highway Code) will require a public hearing when the vacation affects existing in place facilities or is a project caused by relocating right-of-way.

Policy 14. A summary vacation shall be consistent with State of California Streets and Highway Code. A summary vacation may be used when the right-of-way does not exist, is unused, or moved. A summary vacation may be used where right-of-way is impassable, unnecessary for present or prospective public use, or is excess or public service easement land.

Implementation Measures

Measure A. Kern County should require a research fee to determine if a complex vacation application is acceptable.

Measure B. In resolving a vacation request, the Board of Supervisors will follow the policies and laws applicable to such vacation request. Before taking final action, the Board of Supervisors may require the applicant to submit additional study(s). Staff shall oversee the applicant's information gathering process and suggest alternatives if necessary.

Measure C. The Planning Department shall issue guidelines for applicants to use in the preparation of road vacation applications and attendant reports.

2.3.10 Congestion Management Programs

State law requires that urbanized counties prepare an annual congestion management program (CMP). City and county eligibility for new gas tax subventions is contingent upon their participation in the congestion management program. To qualify for funding provided through the State Transportation Improvement Program (STIP) or the Federal Transportation Improvement Program (FTIP), the regional transportation agency must keep current a Regional Transportation Program (RTP) that contains the CMP. Also, the CMP offers local jurisdictions the opportunity to find cooperative solutions to the multi-jurisdictional problems of air pollution and traffic congestion.

The CMP has links with air quality requirements. The California Clean Air Act requires that cities and counties implement transportation control measures (TCMs) to attain, and maintain, the State air quality standard.

Goals

Goal 1. To satisfy the trip reduction and travel demand requirements of the Kern Council of Government's Congestion Management Program.

Goal 2. To coordinate congestion management and air quality requirements and avoid multiple and conflicting requirements.

Policies

Policy 1. Pursuant to California Government Code 65089(a), Kern County has designated Kern Council of Governments as the County's Congestion Management Agency (CMA).

Policy 2. The Congestion Management Agency is responsible for developing, adopting, and annually updating a Congestion Management Plan. The Plan is to be developed in consultation with, and with the cooperation of, the regional transportation agency (also Kern Council of Governments), regional transportation providers, local governments, Caltrans, and the air pollution control district.

Implementation Measures

Measure A. Kern County Council of Governments should request the proper consultation from County of Kern to develop and update the proper congestion management program .

Measure B. The elements within the Kern Congestion Management Program are to be implemented by each incorporated city and the County of Kern. Specifically, the land use analysis program, including the preparation and adoption of deficiency plans is required. Additionally, the adoption of trip reduction and travel demand strategies are required in the Congestion Management Program.

2.5. Other Modes

2.5.1 Trucks and Highways

Goals

Goal 1. Provide for Kern County's heavy truck transportation in the safest way possible.

Goal 2. Reduce potential overweight trucks.

Goal 3. Use State Highway System improvements to prevent truck traffic in neighborhoods.

Policy

Policy 1. Caltrans should be made aware of the heavy truck activity on Kern County's roads.

Policy 2. Reduce potential overweight trucks.

Policy 3. Use State Highway System improvements to prevent truck traffic in neighborhoods.

2.5.4. Transportation of Hazardous Materials

Goals

Goal 1. Reduce risk to public health from transportation of hazardous materials.

Policy 1. The commercial transportation of hazardous material, identification and designation of appropriate shipping routes will be in conformance with the adopted Kern County and Incorporated Cities Hazardous Waste Management Plan.

Policy 2. Kern County and affected cities should reduce use of County-maintained roads and city-maintained streets for transportation of hazardous materials.

Chapter 4. Safety Element

Goals

Goal 5. Ensure the availability and effective response of emergency services following a catastrophic event.

Policy 4. The County shall encourage extra precautions be taken for the design of significant lifeline installations, such as highways, utilities, and petrochemical pipelines.

4.6 Wildland and Urban Fire

Policy 1. Require discretionary projects to assess impacts on emergency services and facilities.

Policy 6. All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.

Buttonwillow Community Development Plan

Site 1 is located within the jurisdictional boundary of the *Buttonwillow A Community Development Plan* (Kern County 1974) (Buttonwillow Community Development Plan), is a specific plan that guides land use decisions for the future development within and surrounding the Buttonwillow community. The Buttonwillow Community Development Plan addresses issues of importance in the area by stating goals, recommendations, and implementation measures to accommodate growth while protecting the community's unique business, transportation, and environmental issues. The Buttonwillow Community Development Plan works in tandem with the KCGP and Zoning Ordinance to direct land use and development decisions, establishing a single set of community-wide policies and implementation strategies. It contains Community Development, Land Use, Housing, Circulation, Conservation, and Open Space Elements.

Kern Council of Governments 2022 Regional Transportation Plan/Sustainable Communities Strategy

The Kern Council of Governments is a regional transportation agency which is responsible for preparing the RTP that examines long-range transportation challenges, opportunities, and needs for Kern County. The current (2022) RTP is a 24-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County (Kern COG 2022). The 2022 RTP includes a: policy element that is shaped by goals, policies, and performance indicators; description of planning assumptions for regional growth and future needs for travel and goods movement; Sustainable Communities Strategy (SCS) that identifies planning strategies and illustrative development patterns that would reduce greenhouse gas emissions; and plan of action for the region to pursue to meet identified transportation needs. The 2022 RTP/SCS was developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, state, and federal agencies. The RTP/SCS must be updated every four years; Kern Council of Governments (Kern COG) currently is preparing an update to the 2022 RTP/SCS which is anticipated for adoption in 2026. The 2022 RTP/SCS sets forth the following seven specific goals:

1. Mobility – Improve the mobility of people and freight.
2. Accessibility – Improve accessibility to, and the economic wellbeing of, major employment and other regional activity centers.
3. Reliability/Safety – Improve the reliability and safety of the transportation system.

4. Efficiency – Maximize the efficiency and cost effectiveness of the existing and future transportation system.
5. Livability/Quality of Life – Promote livable communities and satisfaction of consumers with the transportation system.
6. Sustainability – Provide for the enhancement and expansion of the system while minimizing effects on the environment.
7. Equity – Ensure an equitable distribution of the benefits among various demographic and user groups.

The 2022 RTP/SCS promotes a more efficient transportation system that calls for fully funding alternative transportation modes, while emphasizing transportation demand and transportation system management approaches for new highway capacity. The Constrained Program of Projects (included in the 2022 RTP/SCS, Chapter 5, Strategic Investments, Table 5-1), includes projects to achieve a financially constrained and balanced system for the region. Constrained projects have undergone air quality conformity analyses to ensure that they contribute to the region's compliance with State and Federal air quality rules.

The 2022 RTP/SCS includes discussion of the expansion of renewable energy projects given that Kern County is the renewable energy center for California, producing more renewable energy than any other county in the state, and is home to the nation's largest solar plant, wind farm, geothermal facility, and grid level battery energy storage system. There are approximately 5,000 wind turbines in the Tehachapi-Mojave wind corridor and, when combined with the region's solar fields, produce 1.7 terawatt hours (1.7 million megawatts) each year. Kern County also has another 6,500 MWh of battery storage in place for these intermittent renewable sources. The county's dependence on energy and natural resource production as part of its economic structure is reflected in the fact that eight of 10 of the county's top taxpayers are either oil-producing and/or processing companies, renewable energy producers, or mining operations. New installation-related traffic can be expected to continue into the near future and likely well-beyond.

Engineering, Surveying, and Permit Services Department

The Engineering, Surveying, and Permit Services Department enforces Kern County's Development Standards (Kern County 2023) for streets and other infrastructure. The standards are applicable to development within Kern County, outside of incorporated cities. Division 9 of the County's development standards specifies requirements for traffic studies, such as the TIS prepared for this Draft EIR (Dudek 2025) attached as Appendix K. Further, Division 1, Section 105-4, of the standards requires County authorization via an Encroachment Permit for all construction that connects driveway approaches to County roads. Finally, the Engineering, Surveying, and Permit Services Department's Transportation and Encroachments Permits Division issues Transportation Permits for vehicles on County roadways that carry oversized loads, as specified in the CVC.

Kern County Airport Land Use Compatibility Plan

The Kern County Airport Land Use Compatibility Plan establishes procedures and criteria to assist Kern County and affected incorporated cities in addressing compatibility issues between airports

and surrounding land uses. The proposed Project is not located within a designated Airport Land Use Compatibility zone.

4.15.4 Impacts and Mitigation Measures

Methodology

This section presents the analysis of proposed Project impacts regarding transportation and traffic. Specifically, this section describes the methods used to identify the impacts of the proposed Project (both Project-specific and cumulative), the thresholds used to determine whether an impact would be significant, feasible mitigation measures to reduce significant impacts, and the significance of impacts after implementation of feasible mitigation measures. The TIS attached as Appendix K to this Draft EIR informed this analysis of transportation and traffic impacts. The analysis of potential impacts considered all phases of the proposed Project: construction; operation and maintenance (O&M); and decommissioning.

Level of Service

As stated above, the TIS on which this analysis is based used the methodology set forth in the *Highway Capacity Manual, 6th Edition* (HCM 6) (Transportation Research Board 2016) to analyze the operation of signalized and unsignalized study intersections. The HCM analysis methodology describes the operation of an intersection using LOS and the corresponding control delay experienced per vehicle for unsignalized intersections. (See the KCGP descriptions of LOS, above.) The analysis involved measuring existing AM and PM peak hours conditions and modeling future conditions using Project-related traffic plus cumulative increases in traffic from other projects. The Synchro 12 LOS software was used to determine intersection LOS. **Table 4.15-3:** *Levels of Service for Intersections using HCM Methodology,* shows the LOS values by delay ranges for unsignalized and signalized intersections under the HCM methodology. As shown in **Table 4.15-1:** *Existing Peak-Hour Traffic Levels of Service Summary for Intersections* (above), all study area intersections operate at an acceptable LOS (LOS D or better) during weekday AM and PM peak hours, using County standards.

Table 4.15-3: Level of Service for Intersections Using HCM Methodology

LOS	Unsignalized Intersections Control Delay (in seconds per vehicle)	Signalized Intersections Control Delay (in seconds per vehicle)
A	≤ 10.0	≤ 10.0
B	> 10.0 to < 15.0	> 10.0 to < 20.0
C	> 15.0 to < 25.0	> 20.0 to < 35.0
D	> 25.0 to < 35.0	> 35.0 to < 55.0
E	> 35.0 to < 50.0	> 55.0 to < 80.0
F	> 50.0	> 80.0

Source: Dudek 2025

Key: HCM = Highway Capacity Manual; LOS = level of service

The analysis of roadway segment performance uses both qualitative LOS considerations plus quantitative considerations based on the design capacity of a roadway versus actual traffic volumes that occur along the roadway (for example, V/C). This measurement of V/C reveals how effectively a roadway is functioning and informs congestion levels and potential delays along a roadway. A lower ratio suggests "good" flow, while a higher ratio indicates the road is nearing or exceeding capacity. The V/C ratio is typically expressed as a decimal or percentage, where values greater than one indicate that demand exceeds capacity. The analysis of proposed Project impacts involves measuring the existing V/C of a roadway segment which is compared to modeled changes in V/C with Project-generated and other sources of traffic that would occur along the roadway segment and are correlated with LOS.

Table 4.15-2: *Existing ADT Roadway Segments LOS* (above), shows that all studied existing roadway segments operate at an acceptable average daily trips (ADT) V/C condition—that is, studied intersections and roadway segments are operating at an acceptable LOS per the KCGP.

Vehicle Miles Traveled

The State CEQA Guidelines Section 15064.3(b) states (in pertinent part):

> *If existing models or methods are not available to estimate the vehicle miles traveled for the particular project being considered, a lead agency may analyze the project's vehicle miles traveled qualitatively. Such a qualitative analysis would evaluate factors such as the availability of transit, proximity to other destinations, etc. For many projects, a qualitative analysis of construction traffic may be appropriate.*

The CEQA Guidelines define VMT as "…the amount and distance of automobile travel attributable to a project…." It should be noted that "automobile" refers to on-road passenger vehicles, specifically cars and light trucks. Heavy-duty truck VMT could be included for modeling convenience and ease of calculation (for example, where models or data provide combined auto and heavy truck VMT). Further, the State CEQA Guidelines (Section 15064.3(b)) provides additional, general direction on the evaluation of VMT-related impacts based on whether a project is a land use versus a transportation project and whether quantitative versus qualitative methods are available for use.

The County of Kern has not yet adopted transportation guidelines for estimating VMT and VMT-related impacts. In addition, the proposed Project does not involve a land use project addressed in the State CEQA Guidelines (for example, a residential or office project) and does not involve a transportation project. Therefore, the analysis of VMT-related impacts relied on qualitative measures and utilized additional guidance provided in the LCI's *Senate Bill (SB) 743: Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR 2018) to inform the analysis of impacts regarding VMT.

Pursuant to LCI guidance, projects that generate or attract fewer than 110 ADT generally are assumed to create an insignificant VMT impact and do not warrant in-depth evaluation. As described further below, the O&M phase of the proposed Project is estimated to produce less than 110 ADT and, therefore, does not require an in-depth analysis of VMT-related impacts. In contrast,

the proposed Project would generate construction-related trips and decommissioning-related trips that each may exceed 110 ADT at least for a limited duration. Therefore, the analysis utilized a qualitative approach set forth in the LCI guidance which involved comparing Project-generated VMT to VMT that existing uses and development located within the vicinity of the Project site generate (that is, Kern COG VMT data by Traffic Analysis Zone (TAZ) in the Project study area).

Traffic generated during the construction period would be from site preparation through construction, testing, and commercial operation and is estimated to occur for approximately 60 months. Trip generation estimates for the peak construction phase are based on the number of workers and trucks that would be required for the proposed construction activities. The overall peak construction period was utilized to calculate the estimated trip generation for the proposed Project. Due to the size of the construction area (up to approximately 11,983 acres over multiple discontinuous sites), it is likely that construction only would occur within specific areas of the site at one time. However, as the overall project phasing has not yet been established, construction across the entirety of the Project site was analyzed during the peak construction period to provide the most conservative approach such that the highest number of overlapping trips could be analyzed at each study location.

Finally, given the similarities between activities that would occur during the construction and the decommissioning phases of the proposed Project, the analysis assumed that travel routes, trip generation rates, and VMT during decommissioning activities would be similar to those generated during the construction phase.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist state that a project would normally be considered to have a significant impact if it would:

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.
- Conflict or be inconsistent with CEQA Guidelines Section 15064.3(b).
- Substantially Increase Hazards due to a Design Feature (e.g., Sharp Curves or Dangerous Intersections) or Incompatible Uses.
- Result in Inadequate Emergency Access.

Impact 4.15-1: Would the Project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Kern County General Plan

The proposed Project is located entirely within an area that is subject to the KCGP and partially located within the area that is subject to the Buttonwillow Community Development Plan, where the minimum acceptable LOS is LOS D. To determine general plan consistency relating to intersection and roadway LOS, the TIS provided an analysis of the operations of the existing and future street system with the addition of traffic associated with the proposed Project. The operational analysis includes LOS analysis for peak-hour intersection and daily roadway operations, as well as queueing and signal warrant evaluation.

Construction

The construction period for the proposed Project would include site preparation through construction, testing, and commercial operation is expected to be built over the course of up to five years. Trip generation estimates for the peak construction phase are based on the number of workers and trucks that would be required for the proposed construction activities. Construction traffic includes the number of workers and the amount of truck traffic that would be generated to and from the site daily and during the AM and PM peak commuting hours. The overall peak construction period was utilized to calculate the estimated trip generation for the proposed Project.

The peak period of construction would occur when multiple phases of construction overlap, resulting in a peak in worker and truck trips, thereby, maximum traffic impacts (for example, tracker foundations and underground cabling of the solar arrays). Due to the size of the construction area (up to approximately 11,983 acres over multiple discontinuous sites), it is likely that construction would only occur within specific areas of the site at one time. However, as the overall project phasing has not yet been established, construction across the entirety of the Project site was analyzed during the peak construction period to provide the most conservative approach such that the highest number of overlapping trips could be analyzed at each study location. **Table 4.15-4:** *Construction Phase Trip Generation*, shows the construction trip generation calculations associated with peak construction periods.

Table 4.15-4: Construction Phase Trip Generation

Vehicle Type	Daily Quantity	Daily Trips	AM Peak Hours Trips			PM Peal Hours Trips		
			In Trips	Out Trips	Total Trips	In Trips	Out Trips	Total Trips
Non-PCE Adjusted Trip Generation								
Construction Workers[1]	1,334 (workers)	2,668	668	0	668	0	668	668
Trucks[2]	326 (trucks)	652	59	78	137	60	78	138
Total Peak Hours Trips (Non-PCE)		**3,320**	**727**	**78**	**805**	**60**	**746**	**806**
PCE Adjusted Trip Generation								
Construction Workers	1,334 (workers)	2,668	668	0	668	0	668	668
Trucks[3]	726 (trucks)	1,452	132	133	265	133	132	265
Total Peak Hours Trips (PCE)		**4,120**	**800**	**133**	**933**	**133**	**800**	**933**

Source: Dudek 2025
Notes:
[1] Assumes 50 percent of construction workers arrive in the AM peak hour and depart the site in the PM peak hour.
[2] Trucks are assumed to arrive and depart the site evenly throughout the workday.
[3] Trucks are the combined total of both vendor and haul trucks across all sites within one day. Vendor trucks use a PCE rate of 2.0 and haul trucks use a PCE rate of 3.0. Water trucks are represented in the vendor truck category.
Key: PCE = passenger car equivalence

It is estimated that an average of up to 800 workers per day with up to 1,334 workers during peak construction periods would be required during construction of the proposed Project. To account for the impact construction-related trucks may have compared to passenger vehicles, passenger car equivalence (PCE) factors were applied to the trip generation estimates to account for truck traffic associated with construction activity. A 1.0 PCE factor was applied to passenger vehicles, 2.0 PCE for vendor trucks (which also includes trucks hauling water from off-site locations), and 3.0 for haul trucks.

Further, heavy construction is expected to occur between the hours of 7:00 AM and 6:00 PM in compliance with Kern County regulations. Therefore, the construction trip generation estimates shown in **Table 4.15-4:** *Construction Phase Trip Generation* are based on a typical construction phase workday which is expected to occur Monday through Friday, excluding federal holidays. To provide a conservative analysis while also accounting for trips beginning or ending prior to peak period and/or multiple shifts throughout the workday, the analysis assumed that 50 percent of construction workers would arrive inbound to the site during the AM peak period (7:00 AM to 9:00 AM) and 50 percent of construction workers would depart the site during the PM peak period (4:00 PM to 6:00 PM). Truck deliveries are typically sporadic throughout the workday; therefore, to provide a conservative analysis, truck arrivals and departures were distributed evenly from the beginning of the AM peak period (7:00 AM) to the end of the PM peak period (6:00 PM).

Based on these assumptions, the peak period of construction for the proposed Project would generate approximately 3,320 daily trips for non-PCE vehicles (805 trips are during the AM peak hours and 806 trips are during PM peak hours). After trip generation estimates were adjusted utilizing PCE factors, the peak period of construction for the proposed Project would generate approximately 4,120 daily trips (933 trips during AM peak hours, and 933 trips during PM peak hours).

Table 4.15-5: *Existing Plus Project Weekday Peak Hour Intersection LOS*, provides the estimated changes in LOS that would occur for study intersections during construction. As shown, all the study intersections except the Magnolia Avenue/7th Standard Road intersection would continue to operate at a satisfactory LOS with Project-added traffic. The Magnolia Avenue/7th Standard Road intersection is forecast to operate at LOS E with the proposed Project-added traffic during the PM peak hour, due to the high volume of eastbound left-turn and through movements and the high volume of westbound through movements that delay the southbound left movements. This degradation in LOS at the Magnolia Avenue/7th Standard Road intersection is considered a potentially significant impact However, as described above, construction activities would be limited (estimated to occur over five years) and this analysis assumes a worst-case scenario of construction across the entirety of the Project site, whereas construction would likely occur within specific areas of the site at one time. With implementation of Mitigation Measure 4.15-1, methods limiting worker vehicle trips during peak hours, or the control of number of trips during these hour, would ensure impacted intersections would meet acceptable LOS at study intersections. Further, pursuant to Mitigation Measure MM 4.15-2, the Project proponent would implement a Construction Traffic Control Plan which would include measures such as timing worker arrivals and departures and material deliveries to avoid peak hours and the use of flaggers to direct construction traffic. Once construction is complete, the LOS would return to acceptable conditions, and with implementation of Mitigation Measure MM 4.15-1 and MM 4.15-2, impacts would be reduced to less than significant.

Table 4.15-5: Existing Plus Project Weekday Peak Hour Intersection LOS

Intersection	Traffic Control	Existing				Existing Plus Project			
		AM Peak		PM Peak		AM Peak		PM Peak	
		Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS	Delay[1]	LOS
Rowlee Road/ Merced Avenue	TWSC	9.3	A	9.3	A	9.3	A	9.3	A
I-5 SB Ramps/ Lerdo Highway	TWSC	10.1	B	10.8	B	10.6	B	11.6	B
I-5 NB Ramps/ Lerdo Highway	TWSC	10.7	B	10.3	B	11.1	B	10.5	B
Rowlee Road/ Lerdo Highway	AWSC	8.4	A	8.5	A	9.6	A	9.4	A
Wildwood Road/ Lerdo Highway	TWSC	9.9	A	10.4	B	10.0	B	11.2	B
Buttonwillow Drive/ I-5 NB On-Ramp[3]	None	0.218	A	0.195	A	0.286	A	0.215	A
Buttonwillow Drive/I-5 SB Off-Ramp—Wasco Way	TWSC	10.4	B	11.8	B	11.1	B	12.6	B
Buttonwillow Drive/ 7th Standard Road	AWSC	8.3	A	7.9	A	9.2	A	9.0	A
Wasco Way/ 7th Standard Road	TWSC	10.5	B	9.4	A	12.7	B	10.1	B
I-5 SB Ramps/ 7th Standard Road	TWSC	10.3	B	12.7	B	14.1	B	19.1	C
I-5 NB Off-Ramp/ 7th Standard Road	TWSC	10.7	B	11.8	B	12.1	B	15.3	C
Magnolia Avenue/ 7th Standard Road	TWSC	11.7	B	11.0	B	19.3	C	36.6	**E**
Buttonwillow Drive/SR-58	TWSC	10.7	B	13.0	B	10.8	B	15.0	C
Wasco Way/SR-58	TWSC	12.2	B	12.0	B	13.4	B	15.5	C
I-5 SB Ramps/SR-58—Hageman Road	AWSC	8.0	A	10.4	B	8.6	A	10.6	B
I-5 NB Ramps/ Tracey Avenue	TWSC	19.4	C	26.8	D	20.4	C	24.4	C
Tracey Avenue/ Hageman Road	TWSC	14.5	B	22.5	C	17.3	C	28.9	D

Source: Dudek 2025

Notes:

[1] Delay in seconds per vehicle

[2] **LOS in Bold Font =** Unsatisfactory LOS

[3] ICU Value used as HCM does not support all-way, free movements.

Key: AWSC = All-way Stop-Controlled; HCM= Highway Capacity Manual; I-5 = Interstate 5; LOS = level of service; NB = northbound; SB = southbound; SR-58 = State Route 58; TWSC = Two-Way Stop-Controlled;

Table 4.15-6: *Existing Plus Project ADT Roadway Segment LOS,* shows the results of the roadway segment LOS analysis. As shown, the study area roadway segments are operating at acceptable ADT V/C conditions under existing conditions, with and without the Project-added traffic. Therefore, impacts to roadway segments would be less than significant.

Table 4.15-6: Existing Plus Project ADT Roadway Segment LOS

Location	Capacity	Existing ADT	Project-Added Trips	Existing Plus Project ADT	LOS	LOS D or Better?
Lerdo Highway, east of I-5 NB Ramps	15,000	2,324	164	2,488	A	Yes
Buttonwillow Drive, north of I-5 NB On-Ramp	15,000	1,356	363	1,719	A	Yes
Buttonwillow Drive, south of I-5 SB Off-Ramp	15,000	2,039	167	2,206	A	Yes
7th Standard Road, west of I-5 SB On-Ramp	15,000	2,008	353	2,361	A	Yes
7th Standard Road, east of I-5 NB Off-Ramp	15,000	3,933	858	4,791	A	Yes
Wasco Way, south of 7th Standard Road	15,000	258	219	477	A	Yes
Hageman Road, west of I-5 SB Ramps	15,000	6,365	451	6,816	A	Yes
Hageman Road, east of Tracey Avenue	15,000	5,012	459	5,471	A	Yes

Source: Dudek 2025

Notes:

[1] Capacity determined from Table 4.3-2 Roadway Capacities, per the Metropolitan Bakersfield General Plan Update EIR for 2-lane collector roadways.

[2] Volume provided from ADT counts conducted on July 27, 2023

Key: ADT = average daily trips; I-5 = Interstate 5; LOS = level of service; NB = northbound; SB = southbound; V/C = volume/capacity

Therefore, with the implementation of Mitigation Measures MM 4.15-1 and MM 4.15-2, proposed Project construction activities would not conflict with a program, plan, ordinance, or policy regarding the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Impacts would be less than significant.

Operation and Maintenance

O&M activities generally would include: cleaning photovoltaic (PV) panels; monitoring electricity generation; providing site security; and conducting facility maintenance which could include monitoring equipment and control systems, replacing or repairing inverters, wiring, and PV modules, conducting road maintenance, conducting fence repairs, managing vegetation, and/or utility coordination.

O&M of the proposed Project would include up to 20 full-time employees who would operate and maintain the facility seven days a week, primarily during normal business hours. These workers would be required to conduct periodic maintenance or repair work which typically would occur during normal business hours but may occur outside of normal business hours during emergencies.

The TIS assumed that each employee would make one inbound and one outbound trip daily for an estimated 40 daily trips total, with seven trips during the PM peak hours and seven trips during the AM peak hours of a typical weekday. The County's guidelines require that analysis be conducted at intersections where a project would generate 50 or more peak hours trips. Consequently, employee trips associated with operations and maintenance are considered de minimis and an analysis of LOS conditions for project O&M was not conducted. Additionally, due to the relatively small number of on-site employees, the proposed Project would not adversely affect any area transit, bicycle, or pedestrian facilities.

Therefore, proposed Project O&M activities would not conflict with a program, plan, ordinance, or policy regarding the circulation system, including transit, roadway, bicycle, and pedestrian facilities. Impacts would be less than significant.

Decommissioning

The proposed Project has an operational life of up to 35 years; however, the proposed Project could have a longer life expectancy if the applicant replaces and repowers certain project components. Traffic volumes within the study area cannot be projected that far in the future without speculation. Further, it is likely that at least certain, existing roadway and intersection conditions will change prior to the end of the 35-year operational period. Therefore, an evaluation of impacts at this time would be too speculative to be meaningful (State CEQA Guidelines Section 15145).

However, transportation impacts from decommissioning are expected to be similar to the construction-related traffic impacts described above to a lesser extent, as decommissioning is anticipated to take course over 25 months. Similar to the construction-related traffic impacts, traffic impacts from decommissioning would be limited in duration and—if the majority of affected roadways and intersections continue to operate at an acceptable LOS—impacts are unlikely to require measures beyond what is required for construction-related impacts. Thus, proposed Project decommissioning would not conflict with an applicable plan, ordinance, or policy regarding the circulation system, including transit, roadway, or bicycle and pedestrian facilities. Impacts would be less than significant.

Removal of Future Road Reservations

The proposed Project includes amendments to the KCGP Circulation Element and Buttonwillow Community Development Plan to remove various sections and midsection line future road reservations, within the Project site. (See **Figure 3-4 (A-E):** *Circulation Element Amendments*). Additionally, the proposed Project includes amendments to the KCGP Circulation Element to remove future road reservations along section and midsection lines where solar arrays are proposed and public streets would not be needed.

The proposed amendments to the KCGP Circulation Element and Buttonwillow Community Development Plan would not affect any existing roadways or eliminate any access to existing land uses. Further, with the adoption of the proposed amendments, the proposed Project would not conflict with an applicable plan, ordinance, or policy regarding the Kern County circulation system, including transit, roadway, bicycle, and/or pedestrian facilities. Therefore, impacts would be less than significant.

Public Access Easement Vacations

As noted previously, the Project proponent has requested approval to allow the vacation of existing public access easements on the Project site as shown in **Figure 3-13 (A and B):** *Easement Vacation (Site 1 and Site 5)* in Chapter 3, *Project Description*, that shows the public roadway street vacations. Approval of the road vacations would facilitate the optimal layout of solar panels by removing recorded but undeveloped public rights-of-way on vacant land.

In the cases where one of the proposed vacations removes primary access to a parcel, the Project proponent would be responsible for recording private easements for access purposes prior to the vacation being recorded. In most cases, the proposed private easements would be recorded concurrent with the vacations of the original public easements.

The proposed Project would comply with KCGP Circulation Section 2.3.6 Vacation of Existing or Recorded Future Streets, Highways, or Public Easements Goal 2 and Policies 1 through 14 related to the maintenance and coordination of proposed street vacations. The proposed vacation would not restrict the traveling public or neighboring property owners access to areas outside the project boundary. As such, impacts related to the approval of the proposed road vacations would be less than significant.

Transit, Bicycle, and Pedestrian Facilities

There are no dedicated or planned pedestrian or bicycle facilities within proximity to the Project site or along roadways that provide regional access to the Project site due, in part, to the rural characteristics of the Project site and surroundings. Further, the Project site is not located along an existing bus route and, therefore, construction, operation, and maintenance workers are unlikely to utilize buses and bus facilities to access the Project site. Therefore, impacts regarding transit, bicycle, and/or pedestrian facilities would be less than significant.

Kern Council of Governments 2022 Regional Transportation Plan/Sustainable Communities Strategy

As described above, the 2022 RTP/SCS includes a: policy element that is shaped by goals, policies, and performance indicators; description of planning assumptions for regional growth and future needs for travel and goods movement; SCS that identifies planning strategies and illustrative development patterns that would reduce greenhouse gas emissions; and plan of action for the region to pursue to best meet the identified transportation needs. Although Kern COG does not have jurisdiction over land use planning, the 2022 RTP/SCS sets forth general policies/actions which apply to certain types of development and are intended to achieve the specific goals listed above.

While all the goals are interrelated and important, the 2022 RTP/SCS identifies mobility as the RTP/SCS's highest goal. The proposed Project involves changes (for example, the elimination of planned, future roadways identified in the KCGP Circulation Element, and the construction of access driveways connecting to public roads) and increases in traffic, to the Kern County roadway network, which could affect Kern COG's ability to achieve the goals set forth in the 2022 RTP/SCS. The following provides an analysis of the proposed Project's consistency with applicable, environmentally-related policies/actions set forth in the 2022 RTP/SCS.

Table 4.15-7: Proposed Project Consistency with Applicable Policies/ Actions of the Kern COG 2022 RTP/SCS

Policy/Action	Project Consistency
4—Enhance and connect existing and future bikeways and pedestrian walkways in the Kern Region including disadvantaged communities[1].	**Consistent.** The Project site is located within an area that includes designated SB 535 (2012) DACs (California Office of Environmental Health Hazard Assessment 2022). However, the Project site is located within a rural, agricultural area of the unincorporated area of Kern County and does not include existing or planned bikeways and/or pedestrian walkways with which the proposed Project could interfere.
5—Encourage … Kern COG member jurisdictions to update and implement their adopted local bicycle plans and to incorporate bicycle facilities into local transportation projects.	
15.3—Maintain and enhance existing roadway infrastructure and vehicles with emerging technology to provide for more efficient use and reduce emissions, including electrification and clean fuel technology.	**Consistent.** Prior to constructing driveways that afford access from public roadways to the Project site, the Project proponent would be required to obtain an Encroachment Permit, thereby confirming that the driveway access points do not interfere with any roadway infrastructure that may be planned for the public roadways for the purpose of achieving the objectives of this Policy/Action 15.3. Further, the proposed Project would generate renewable solar energy that may be made available and purchased for electric automobile charging stations that are a part of the grid to which renewable solar energy would be provided.
27.8—Encourage cities and the county to provide parking requirements (and parking provisions) compatible with compact, pedestrian, and transit-supportive design and development. Requirements should account for mixed uses, transit access, and the linking of trips that reduce reliance on automobiles and total parking demand.	**Consistent.** As described above, the majority of proposed Project-related traffic would occur during the construction and decommissioning phases of the proposed Project. Given that these trips would be temporary, the proposed Project does not include the construction of permanent parking areas to accommodate the vehicles associated with these trips. Further, the proposed Project is estimated to involve 20 full-time employees during operation and includes parking areas that are sized to accommodate the number and types of vehicles that employees are likely to use to access the Project site. Given the Project site's location in a rural, agricultural area that lacks transit facilities, the proposed Project does not include amenities to facilitate the use of transit to access the Project site.

Policy/Action	Project Consistency
28—Encourage land use planning by Kern COG local Government member agencies that recognizes Kern's large area, dispersed centers and unique geographic features of the region.	**Consistent.** The Project site is located in a rural, agricultural area that involves properties of sufficient size to accommodate the proposed, utility-scale solar facilities. Given the amount of land area that is required to accommodate the proposed Project, the proposed Project cannot be located in urban areas that provide multimodal forms of transportation.
32—Achieve national and state air quality standards for healthy air by the mandated deadlines for all communities and especially disadvantaged communities.	**Consistent**. As described in Section 4.3, *Air Quality*, construction activities of the proposed Project have the potential to exceed standards for NOx and particulate matter (PM_{10}), thereby resulting in potentially significant impacts. However, with the implementation of the recommended mitigation measures (Mitigation Measures MM 4.3-1 through MM 4.3-3), the proposed Project would not exceed the applicable standards and impacts would be less than significant.
32.5—During the project level environmental process perform local hot spot analysis of air pollution in accordance with the proscribed federal process to identify which communities may be impacted by proposed transportation projects.	**Consistent.** As stated above, the Project site is located within an area with designated DACs. Although the proposed Project does not involve the development of a new transportation project, the proposed Project involves changes to the KCGP Circulation Element and the introduction of proposed Project-related traffic to the existing roadway network. As described in Section 4.3, *Air Quality*, the proposed Project was subject to a local hot spot analysis which revealed that the proposed Project would not result in the creation of a local hot spot at an intersection located within the regional roadway network, at either a Project-specific or cumulative level.
33.1—Avoid, minimize, and/or mitigate disproportionately high and adverse human health or environmental effects, including social and economic impacts, on traditionally disadvantaged communities, especially racial minority and low-income communities.	

Note:

[1] State legislation gives CalEPA the responsibility for designating disadvantaged communities in order to improve the public health, quality of life, and economic opportunity in California's most historically disinvested communities. CalEPA determines these designations based on various criteria including pollution burden and socioeconomic factors that are collectively used to calculate overall scores by census tract generated by CalEnviroScreen 4.0.

Key: CalEPA = California Environmental Protection Agency; DAC = disadvantaged community; KCGP = Kern County General Plan; Kern COG = Kern Council of Government; NO_x = nitrous oxides; PM_{10} = particulate matter 10 microns or less; RTP = regional transportation plan; SB = Senate Bill; SCS = sustainable communities strategy

The proposed Project will not interfere with the implementation of applicable, environmentally-related policies/actions set forth in the 2022 RTP/SCS. Therefore, impacts regarding transit, bicycle, and/or pedestrian facilities would be less than significant.

Midway Substation Upgrades

The proposed Project includes enlarging the Midway Substation's 500-kilovolt (kV) yard within the Pacific Gas & Electric (PG&E)-owned Midway Substation property boundaries. The Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities as part of the proposed Project. PG&E may install two four-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest of the Midway Substation property. Other

activities include: installing up to nine, 67.5 cubic feet underground substructure vaults along the conduit trenches; removing an existing precast security wall at the northwest side of the Midway Substation and replacing it with a new 12-foot wall; grading of the connection area; installing approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker; equipment foundations and concrete trenches; equipment cabinets; bus structures; communication lines; conduits; pull boxes; and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the Point of Change of Ownership for the proposed Project. Up to four approximately 175-foot-tall lattice steel towers (LST) or tubular steel poles (TSPs) would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads. For a detailed description of the Midway Substation upgrades see Section 3.0, *Project Description.*

The upgrades to the Midway Substation would be completed by PG&E. Most of the construction workforce is expected to live in the region and would commute to the site from various local communities. There would be no additional operational trips associated with the PG&E Midway Substation. Construction and operation of the PG&E improvements would not conflict with a program, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities. Additionally, trip generation to support PG&E's upgrades to the Midway Substation was included in the transportation and traffic analysis conducted for the proposed Project and detailed in Appendix K, of this Draft EIR such that the transportation impacts for PG&E substation upgrade work is included in the discussion of project impacts described above. Once operational, it is not anticipated that the upgrade of the PG&E Midway Substation would require additional full time employees, and therefore, no additional work to home trips would be associated with the upgrades within these parcels.

Decommissioning of PG&E Midway Substation facilities would involve similar, yet substantially less activities, as compared to those involved at other areas of the Project site.

Summary

The proposed Project has the potential to create potentially significant but mitigable impacts regarding programs, plans, ordinances, or policy addressing the circulation system. Compliance with federal, state, and local regulations and implementation of Mitigation Measures MM 4.15-1 and MM 4.15-2 requiring the implementation of a Construction Traffic Control Plan to reduce impacts to a less than significant level.

Mitigation Measures

MM 4.15-1: Prior to the issuance of construction or building permits, the project proponent/operator shall implement measures to ensure peak hour construction worker vehicle limits are maintained during the AM and PM peak hours in order to maintain LOS D or better at the study intersections. These measures may include, but are not limited to the following:

a. The Construction Traffic Control Plan shall outline the methods used to limit worker vehicle traffic departing from the project site during peak AM and PM hours, methods used to control the number of trips during these hours, and documentation of reasonable coordination efforts with other projects in the area to avoid impacts to study intersections.

b. The project proponent/operator shall limit construction worker vehicle trips to and from the site to the extent possible during the AM and PM peak periods (i.e.,7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.).

c. If the Kern County Public Works Department indicates that either AM or PM peak hour construction trips may exceed the peak hour construction worker vehicle limits, the project proponent/operator shall implement measures to reduce peak hour passenger vehicle trips at the impacted intersections. These measures could include:

   1. Scheduling construction worker shifts so that a majority of the workers arrive and depart the project site outside the AM and PM peak periods.

   2. Staggering construction worker shifts so that construction worker vehicle trips are distributed over a broader period (i.e., construction workers arrive in staggered shifts starting from 6:00 a.m. and depart in staggered shifts starting from 2:00 p.m.).

   3. Instituting incentives and providing options for construction workers to carpool and/or vanpool to and from the project site.

MM 4.15-2: Prior to the issuance of construction or building permits, for each facility, the project proponent/operator shall:

a. Prepare and submit a Construction Traffic Control Plan to the Kern County Public Works Department-Development Review and the California Department of Transportation offices for District 6, as applicable, for approval. The Construction Traffic Control Plan(s) must be prepared in accordance with both the California Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook and must include, but not be limited to, the following issues:

   1. The routes, duration, and types of traffic control that will be implemented to accommodate construction-related traffic;

2. Timing of deliveries of heavy equipment and building materials. To the extent feasible, prohibit deliveries and vendor vehicle arrivals and departures during either the AM and PM peak periods;

3. Directing construction traffic with a flag person;

4. Placing temporary signage, lighting, and traffic control devices if required, including, but not limited to, appropriate signage along access routes to indicate the presence of heavy vehicles and construction traffic;

5. Ensuring access for emergency vehicles to the project sites;

6. Temporarily closing travel lanes or delaying traffic during materials delivery, transmission line stringing activities, or any other utility connections;

7. Ensuring required access from property owners is obtained prior to starting construction;

8. Maintaining access to adjacent property;

9. Specifying both construction-related vehicle travel and oversize load haul routes and avoiding residential neighborhoods to the maximum extent feasible; and

10. Consult with the County to develop coordinated plans that would address construction-related vehicle routing and detours adjacent to the construction area for the duration of construction overlap with neighboring projects. Key coordination meetings would be held jointly between applicants and contractors of other projects for which the County determines impacts could overlap.

b. Obtain all necessary encroachment permits for the work within the road right-of-way or use of oversized/overweight vehicles that will utilize county-maintained roads, which may require California Highway Patrol or a pilot car escort. Copies of the approved traffic plan and issued permits shall be submitted to the Kern County Planning and Natural Resources Department, Kern County Public Works Department-Development Review, and Caltrans.

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. Submit documentation that identifies the roads to be used during construction. The project proponent/operator shall be responsible for repairing any damage to non-county-maintained roads that may result from construction activities.

The project proponent/operator shall submit a preconstruction video log and inspection report regarding roadway conditions for roads used during construction to the Kern County Public Work Department-Development Review and Kern County Planning and Natural Resources Department. Within 30 days of completion of construction, the project proponent/operator shall submit a postconstruction video log and inspection report to the County. This information shall be submitted in an electronic format. The County, in consultation with the project proponent's/operator's engineer, shall determine the extent of remediation required, if any.

Level of Significance after Mitigation

Less than significant.

Impact 4.15-2: Would the Project conflict or be inconsistent with CEQA Guidelines Section 15064.3 (b)?

Construction and Decommissioning

As stated above, the CEQA Guidelines do not provide a VMT significance threshold for construction or decommissioning activities, and Kern County does not have an adopted threshold for evaluating VMT-related impacts for these types of activities. Therefore, pursuant to direction provided in the CEQA Guidelines Section 15064.3(b)(3), the TIS prepared for the proposed Project provided a qualitative analysis of construction-related VMT impacts that compares proposed Project VMT to baseline VMT generated from other uses located within the vicinity of the Project site. Given similarities between construction and decommissioning activities, it can be assumed that VMT-related construction impacts will be similar to those associated with the decommissioning activities.

In order to establish a baseline for daily VMT in the area, the Kern Council of Governments (Kern COG) provided VMT data by TAZ in the proposed Project study area. The Kern COG data shows a range of home-based work VMT in the study area, with the lowest average VMT per employee equal to 32.5 VMT. The analysis of proposed Project impacts regarding air quality and greenhouse gas emissions considered the VMT for the overall proposed Project (using approximate trip lengths for worker commute, vendor, and haul trips). The analysis revealed that the average trip length for construction personnel traveling to and from the site would be approximately 18 miles, which is less than the lowest baseline average VMT of 32.5 miles for the TAZ. Furthermore, while worker and vendor trips would generate VMT, once construction is completed, the construction-related traffic would cease. Therefore, impacts related to construction and decommissioning VMT would be less than significant.

Operation and Maintenance

As described above, the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR 2018) provides a screening criterion to determine if a VMT analysis is warranted for a project. If a project will generate fewer than 110 trips per day, it does not require a VMT analysis

and may be assumed to cause insignificant transportation impacts regarding VMT. The TIS prepared for the proposed Project estimated that project O&M activities would generate 40 daily trips. Therefore, a VMT analysis is not required for O&M activities, and VMT-related impacts associated with O&M activities would be less than significant.

Midway Substation Upgrades

As described above in Impact 4.15-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example., several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. Construction, grading, and excavation activities will be required for the installation of these facilities. Upgrades to the Midway Substation would generate VMT during construction activities due to worker trips and are considered in the analysis above that conclude average trip length would be approximately 18 miles, which is less than the lowest baseline average VMT of 32.5 miles for the TAZ. Once construction is completed, the construction-related traffic would cease. There would be no additional operational trips generated as part of the upgrades as the Midway Substation is an existing facility. Additionally, as stated above, decommissioning of the PG&E Midway Substation facilities would involve similar, yet substantially less activities as compared to other areas of the Project site.

Summary

The proposed Project would generate home-based work trips during construction that is less than the Kern COG lowest average VMT per employee. Operation and decommissioning of the proposed Project would not exceed 110 trips per day, and is assumed to not cause significant transportation impacts regarding VMT. Therefore, the proposed Project would not have significant impacts on transportation resources regarding VMT.

Mitigation Measures

No mitigation measures would be required.

Level of Significance after Mitigation

Less than significant.

Impact 4.15-3: Would the Project substantially increase hazards due to a design feature (for example, sharp curves or dangerous intersections) or incompatible uses (for example, farm equipment)?

The proposed Project does not involve the construction of a new, or rerouting an existing, public roadway, or physical alterations to an existing intersection involving a public roadway. However, the proposed Project would involve the construction and use of new driveways from public roads to provide access to the seven sites that constitute the Project site. Prior to constructing these driveways, the Project proponent would be required to apply for, and obtain, an Encroachment Permit from the Kern County Public Works Department Engineering, Surveying, and Permit

Service's Department (collectively, "Public Works"). Prior to issuing an Encroachment Permit, Public Works would review the proposed location and design of the driveways given the types of roadways to which they would connect, and confirm that they comply with applicable safety design standards set forth in the Kern County Development Standards (for example, Chapter V, Access, Section 105-4, County Roads-Driveway Approaches; Chapter VI, Site Access Design, Section 106-1, Introduction, et seq.; and Chapter V, Line of Sight Review, Section 905-1, Uncontrolled Intersections, et seq.). Compliance with applicable requirements for the issuance of an Encroachment Permit would ensure that the driveways' designs and locations do not present any unusual risks or traffic-related hazards, and impacts would be less than significant.

During construction and operation (as part of maintenance activities), the proposed Project would require the delivery of heavy construction equipment and PV solar components using area roadways, some of which may require transport by oversize vehicles. Heavy equipment associated with these components would not be hauled to/from the site on a regular (for example, daily) basis, but rather on an as-needed basis. Nevertheless, the use of oversized vehicles during construction and periodic maintenance activities can create hazards by limiting motorist views on roadways and by obstructing roadway space, thereby creating the potential for traffic accidents. This is considered a potentially significant impact.

Implementation of Mitigation Measure MM 4.15-2 (above) would reduce impacts associated with hazards from the use of oversized vehicles during construction and/or decommissioning activities. The Project proponent would be required to prepare, and obtain approval of, a Construction Traffic Control Plan which satisfies certain requirements including, but not limited to, obtaining Encroachment Permits for the use of oversized vehicles that will utilize county-maintained roads and use of California Highway Patrol or a pilot car escort, in compliance with the CVC and California Streets and Highways Code. Additionally, during construction and/or decommissioning activities, Mitigation Measure MM 4.15-2 would require the Project proponent to obtain required permits for all oversized vehicles used on public roadways, obtain approval of a Construction Traffic Control Plan, and identify anticipated construction delivery times and vehicle travel routes in advance to minimize construction traffic during AM and PM peak hours. This would ensure that oversized vehicle loads are in compliance with applicable requirements of the CVC and California Streets and Highways Code, including, but not limited to, requirements regarding licensing, size, weight, load, and roadway encroachment of construction vehicles. Therefore, with the implementation of Mitigation Measure MM 4.15-2, impacts would be less than significant.

Midway Substation Upgrades

As described above in Impact 4.15-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities to interconnect the proposed PV solar facilities with the Midway Substation. Construction, grading, and excavation activities will be required for the installation of these facilities. Conduit paths would exit the existing PG&E Substation and terminate at the Point of Change of Ownership, and minor route modifications may be required due to unanticipated constraints. Construction activities have the potential to increase hazards due to oversized vehicles limiting motorist views on roadways, however, PG&E should implement MM 4.15-2, which

requires a Construction Traffic Control Plan. Additionally, PG&E has adopted Best Management Practices (Appendix M) that would reduce impacts from vehicles and equipment during construction activities. There would be no changes to the substation's existing operational traffic once upgrades are complete. Additionally, as stated above, decommissioning of the PG&E Midway Substation facilities would involve similar, yet substantially less activities as compared to other areas of the Project site.

Summary

As described above, the proposed Project has the potential to increase hazards due to design features, specifically during construction due to heavy construction equipment using area roadways, which can be reduced with implementation of the Mitigation Measure MM 4.15-2. Implementation of MM 4.15-2 would require a Construction Traffic Control Plan that would reduce these impacts and would require the Project proponent to obtain any necessary encroachment permits.

Mitigation Measures

Implement Mitigation Measure MM 4.15-2, as described above.

Level of Significance after Mitigation

Less than significant.

Impact 4.15-4: Would the Project result in inadequate emergency access?

Wasco Way, Merced Avenue, Lerdo Highway, Rowlee Road, Wildwood Road, Buttonwillow Drive, 7th Standard Road, Snow Road, SR-58, and/or Sullivan Road will provide access to the Project sites in the event of an emergency. The proposed Project includes the construction of new driveways that will connect these public roadways to on-site access roads that will provide internal access and circulation on the Project sites.

Construction

As described above in Impact 4.15-1, the proposed Project is estimated to generate approximately 4,120 daily trips (933 trips during AM peak hours, and 933 trips during PM peak hours) during the construction phase, which is expected to have a duration of 60 months. Heavy construction-related traffic and the movement of oversize equipment would result in the potential for roadway lane closures during construction. Additionally, although construction equipment and vehicles would be dispersed among the 11,983 Project acres, heavy construction-related traffic and an average of 800 workers per day with up to 1,334 workers during peak construction periods reporting to the various sites could obstruct emergency access and response. To ensure that peak hour construction is managed appropriately, Mitigation Measure MM 4.15-1 requires that the Project proponent limit construction worker vehicle trips to the extent possible during peak periods, and includes additional measures that could reduce peak hour passenger vehicle trips. Mitigation Measure 4.15-1 requires this limitation to be outlined in a Construction Traffic Control Plan, prior to the issuance of construction or building permits. Additionally, to ensure emergency access during construction,

Mitigation Measure MM 4.15-2 requires the preparation of a Construction Traffic Control Plan that includes (but is not limited to) the provision of access for emergency vehicles. The plan would be required to be reviewed by the Kern County Public Works Department and Caltrans District 6. Review of the plan also includes any temporary closures to travel lanes or traffic delay due to work in the public-right-of-way including materials delivery, transmission line stringing activities, and any other utility connections activities. Furthermore, operators of oversize vehicles greater than 8'-6" wide and 14' high and over 80,000 pounds must comply with oversize load permit requirements per Caltrans Single trip permit loads, and prior to construction, the Project proponent would be required to secure all permits for the provision of adequate site access. With implementation of Mitigation Measure MM 4.15-2, heavy construction-related traffic and construction worker trips would result in less than significant impacts regarding emergency access.

Operation

As described in Impact 4.15-3 (above), all access points must be designed and constructed in compliance with applicable safety design standards set forth in the Kern County Development Standards (for example, Chapter V, Access, Section 105-4, County Roads-Driveway Approaches; Chapter VI, Site Access Design, Section 106-1, Introduction, et seq.; and Chapter V, Line of Sight Review, Section 905-1, Uncontrolled Intersections, et seq.). For example, Chapter VI, Site Access Design, Section 106-3, Alignment, requires that access driveways be located so that they intersect with public streets at 90 degrees, or as close as possible, to ensure better visibility for emergency responders and efficient turning movements for emergency vehicles. As described in Chapter 3, *Project Description*, a 20-foot-wide–minimum road is required around the perimeter of the solar arrays for the fire department and emergency vehicles, per Kern County Ordinance, Title 17 Buildings and Construction, Chapter 17.32, Fire Code. This 20-foot dimensional requirement would ensure an adequate fire apparatus on access roads in the Project area and site. Additional internal maintenance roads would be located throughout the Project site. Spacing between each row would depend on final panel type, orientation, and any County regulations. Internal access roads would be 20 feet wide or less and would be cleared and compacted for equipment and emergency vehicle travel and access to the solar blocks. These Project site access roads would remain in place for ongoing O&M activities after construction is completed. Final service road alignments would depend on the final placement of the solar panels, topography, and other site-specific details to be incorporated into the final design. With adherence to Kern County Public Works Department Development Standards and Kern County's Fire Code, Chapter 17.32, the proposed Project would have less than significant impacts regarding emergency access.

Midway Substation Upgrades

As described above in Impact 4.15-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities to interconnect the proposed PV solar facilities with the Midway Substation. Construction, grading, and excavation activities will be required for the installation of these facilities. Conduit paths would exit the existing PG&E Substation and terminate at the Point of Change of Ownership, and minor route modifications may be required due to unanticipated constraints. Construction activities have the potential for roadway lane closures during

construction, and 800 workers per day with up to 1,334 workers during peak construction could obstruct emergency access and response. To ensure emergency access during construction, PG&E should implement MM 4.15-2, to ensure the provision of access for emergency access through the Construction Traffic Control Plan. Additionally, PG&E has adopted Best Management Practices (Appendix M) that would reduce impacts to emergency response. There would be no changes to the substation's existing operational traffic once upgrades are complete. Additionally, as stated above, decommissioning of the PG&E Midway Substation facilities would involve similar, yet substantially less activities as compared to other areas of the Project site, and even less impacts compared to construction. If decommissioned, activities are anticipated to take up to 25 months for the entire Project site, with less time anticipated for activities within the PG&E Midway Substation parcels.

Summary

As described above, the proposed Project has the potential to obstruct emergency access and response due to the number of construction workers and daily trips to the Project site, which can be reduced with implementation of the Mitigation Measures MM 4.15-2 and MM 4.15-2. Mitigation would require a Construction Traffic Control Plan that would reduce the potential for inadequate emergency access.

Mitigation Measures

Implement Mitigation Measures MM 4.15-1 and MM 4.15-2, as described above.

Level of Significance after Mitigation

Less than significant.

4.15.5 Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

The potential for cumulative transportation impacts exists where there are multiple projects proposed in an area that have an overlapping construction schedule and/or project operations that could affect similar transportation resources. Projects with overlapping construction schedules and/or operations could result in a substantial contribution to increased traffic throughout the surrounding roadway network, contribute to hazardous roadway conditions, and/or adversely affect emergency access or circulation. Therefore, a temporary cumulative impact related to transportation during construction could result if the proposed Project's incremental effects are combined with impacts of other past, present, and/or reasonably foreseeable future projects. However, as discussed below, Project operation traffic would be minimal once construction activities have concluded.

Table 4.15-8: *Cumulative Projects*, lists the projects that are proposed but not fully approved, and projects that are approved but not fully constructed or occupied, and thus for these reasons were included in the analysis of cumulative impacts regarding transportation. As shown in Chapter 3.0,

Project Description, **Table 3-5:** *Cumulative Projects List*, of this Draft EIR, other projects besides those shown in **Table 4.15-8:** *Cumulative Projects List*, below were considered for inclusion in the analysis of cumulative impacts in this Draft EIR. However, the projects that are not included in **Table 4.15-8:** *Cumulative Projects List* lack sufficient information regarding location, schedule, size, land use, and/or trip generation to provide a meaningful analysis of the cumulative conditions. Based on the locations and types of projects included in the analysis of cumulative impacts regarding transportation, resultant peak-hour intersection and roadway segment volumes were added to projected 2027 volumes to account for cumulative impacts. However, in addition to adding traffic volumes generated by pending projects, 0.5 percent annual growth rate was applied through the Year 2027 to reflect any additional background growth in traffic for the cumulative traffic scenario.

Table 4.15-8: Cumulative Projects List

Name/Permit Number	Location	Description	Status	Map Number[1]
Recreational Vehicle Park Development PLN23-00916	Northwest Corner of Lerdo Highway and Rowlee Road	CUP for RV Park	In Review	1
Cal Centre Warehouse Development PLN22-01114	APN 087-190-18	Cal Centre Warehouse Development; Map 77, GPA, ZCC, CUP, PD	Applied	4
Truck Stop PLN20-01376	20672 Tracy Avenue, Buttonwillow	PD to change the use from restaurant to Truck Fueling Station.	Applied	6
Truck Fueling Station PLN23-00747	APN 090-340-45	PD Plan for truck stop	Applied	9

Source: Dudek 2025

Note:

[1] See Chapter 3.0, *Project Description*, **Table 3-5:** *Cumulative Projects*, and **Figure 3-12:** *Cumulative Projects Map*, of this Draft EIR, for additional information (for example, locational information) regarding the projects listed in this table.

Consistency with Programs, Plans, and Policies

Construction

Table 4.15-9: *Cumulative Project List Construction Phase Trip Generation,* shows the construction trip generation calculations associated with the projects included in the analysis of cumulative impacts regarding transportation, using average inputs set forth in the Institute of Transportation Engineers *Trip Generation Manual*. As shown in **Table 4.15-9:** *Cumulative Project List Construction Phase Trip Generation,* the projects included in the cumulative analysis are forecast to generate approximately 11,403 daily trips, 703 AM peak hour trips, and 784 PM peak hour trips. As discussed above, the proposed Project would generate approximately 4,120 daily trips (933 trips during AM peak hours, and 933 trips during PM peak hours). In combination and assuming that the peak period of construction for projects included in this analysis of cumulative impacts would occur at the same time, a total of 15,523 daily trips would be generated, with 1,636 trips during AM peak hours and 1,681 trips during PM peak hours.

Table 4.15-9: Cumulative Project List Construction Phase Trip Generation

Project	Size	Unit	ITE Code	Land Use	Daily Trips	AM Peak Hour			PM Peak Hour		
						In	Out	Total	In	Out	Total
RV Park Development	17.49	Acres	416	Campground/ RV Park	N/A	1	3	4	3	2	5
Cal Centre Warehouse Development[1]											
Building 1	590	TSF	157	High-Cube Cold-Storage Warehouse	1,692	74	11	85	41	41	82
Building 2	1,300	TSF	155	High-Cube Fulfillment Center	2,725	96	99	195	61	147	208
Building 3	1,260	TSF	154	High-Cube Transload and Short-Term Storage	1,764	70	30	100	38	89	127
Building 4	850	TSF	154	High-Cube Transload and Short-Term Storage	1,190	47	21	68	25	60	85
				Subtotal	**7,371**	**287**	**161**	**448**	**165**	**337**	**502**
Truck Stop[2]	9	FP	950	Truck Stop	2,016	62	64	126	74	65	139
Truck Fueling Station[2]	9	FP	950	Truck Stop	2,016	62	64	126	74	65	139
				Total Trip Generation	**11,403**	**412**	**291**	**703**	**316**	**468**	**784**

Sources: Dudek 2025

Notes:

[1] Trip generation referenced to the Cal Centre Warehouse Traffic Study, Ruettgers & Schuler, 2022.

[2] Due to a lack of available information for these projects, the average truck stop inputs supplied by ITE were used to determine their trip generation.

[3] Figures might not add up due to rounding.

Key: FP= fueling positions; ITE = Institute of Transportation Engineers; N/A = not applicable; RV = recreational vehicle; TSF = thousand square feet

Table 4.15-10: *Cumulative Near Term (2027) Weekday Peak Hour Intersection LOS*, provides the estimated changes in LOS that would occur for study intersections during construction of all projects (that is, the proposed Project plus all others) included in the analysis of cumulative impacts. As shown, two intersections would operate at an unacceptable LOS per the KCGP standards; specifically, Magnolia Avenue at 7th Standard Road and the I-5 Northbound Ramps at Tracey Avenue intersections are forecast to operate at LOS E during PM peak hours.

However, the LOS E conditions at these two intersections would result from the high volume of northbound left-turn and through movements, and southbound through movements that delay the westbound left-turn movements. This delay is a direct result of the Truck Stop and Truck Fueling Station projects near the I-5 ramps at Tracey Avenue. Without the Truck Stop and Truck Fueling Station projects adjacent to I-5, intersection conditions at the I-5 Northbound Ramps at Tracey Avenue would operate at LOS D. Trips generated during the peak construction phase are temporary and, once constructed, the proposed Project would contribute minimal (if any) trips through this intersection. Additionally, Mitigation Measure MM 4.15-1 would ensure that intersections would operate at LOS D or better during AM and PM peak hours by limiting construction worker vehicle trips to certain areas of the Project site, to the extent possible during PM peak periods. Measures to reduce trips during peak hours could include staggering construction worker shifts, incentivizing construction workers to carpool, and other measures that would help maintain LOS D or better. Mitigation Measure 4.15-1 would require these types of methods to be outlined in a Construction Traffic Control Plan, which the Project proponent would need to submit prior to the issuance of construction or building permits.

Table 4.15-10: Cumulative Near-Term (2027) Weekday Peak Hour Intersection LOS

Intersection	Traffic Control	Existing				Existing plus Project			
		AM Peak		PM Peak		AM Peak		PM Peak	
		Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]
Rowlee Road/ Merced Avenue	TWSC	9.4	A	9.3	A	9.4	A	9.3	A
I-5 SB Ramps/ Lerdo Highway	TWSC	10.1	B	10.9	B	10.6	B	11.6	B
I-5 NB Ramps/ Lerdo Highway	TWSC	10.7	B	10.4	B	11.1	B	10.6	B
Rowlee Road/ Lerdo Highway	AWSC	8.4	A	8.8	A	9.6	A	9.4	A
Wildwood Road Lerdo Highway	TWSC	9.9	A	10.5	B	10.0	B	11.3	B
Buttonwillow Drive/ I-5 NB On-Ramp[3]	None	0.247	A	0.254	A	0.321	A	0.273	A
Buttonwillow Drive/I-5 SB Off-Ramp—Wasco Way	TWSC	11.0	B	13.7	B	11.7	B	14.8	B
Buttonwillow Drive/ 7th Standard Road	AWSC	9.1	A	8.8	A	9.9	A	9.4	A
Wasco Way/ 7th Standard Road	TWSC	14.7	B	11.3	B	19.6	C	12.7	B
I-5 SB Ramps/ 7th Standard Road	TWSC	12.2	B	15.1	C	16.3	C	25.4	D
I-5 NB Off-Ramp/ 7th Standard Road	TWSC	13.9	B	15.6	C	25.4	D	22.5	C
Magnolia Avenue/ 7th Standard Road	TWSC	11.8	B	14.1	B	19.4	C	37.8	**E**
Buttonwillow Drive/SR-58	TWSC	10.8	B	13.2	B	11.2	B	15.1	C
Wasco Way/SR-58	TWSC	12.3	B	13.6	B	13.5	B	15.8	C
I-5 SB Ramps/SR-58—Hageman Road	AWSC	8.1	A	11.0	B	8.8	A	11.2	B
I-5 NB Ramps/ Tracey Avenue	TWSC	33.9	D	31.9 / 22.3[4]	D / C[4]	33.9	D	39.2/ 25.1[4]	**E** / D[4]
Tracey Avenue/ Hageman Road	TWSC	16.0	C	26.0	D	19.4	C	34.1	D

Source: Dudek 2025

Notes:

[1] Delay in seconds per vehicle

[2] **Bold Font** – Unsatisfactory LOS

[3] ICU Value used as HCM does not support all-way, free movements.

[4] The LOS analysis was rerun to assess the LOS without cumulative projects BB5 and BB6, which are proposed adjacent to the ramps. LOS improves to acceptable standards without the projects.

Key: AWSC = All-way Stop-Controlled; HCM = Highway Capacity Manual; I-5 = Interstate 5; LOS = level of service; NB = northbound; SB = southbound; SR-58 = State Route 58; TWSC = Two-Way Stop-Controlled;

Further, the Truck Stop and Truck Fueling Station projects are still in the application phase and will be subject to their own County and Caltrans transportation analysis and review, at which time Project-specific intersection improvements may be warranted to improve the intersection LOS. Additionally, Mitigation Measure MM 4.15-2 would require the Project proponent to implement a Construction Traffic Control Plan which would include measures such as efficient timing of deliveries and heavy equipment, and to the extent feasible, avoid arrivals and departures during AM and PM peak hours.

Table 4.15-11: *Cumulative Near-term ADT Roadway Segment LOS,* shows the results of the roadway segment LOS analysis. As shown, the study area roadway segments would operate at acceptable ADT volume-to-capacity conditions under near-term (2027) conditions, with and without the cumulative Project-added traffic. Therefore, impacts to roadway segments would be less than significant.

Table 4.15-11: Cumulative Near-term ADT Roadway Segment LOS Location

	Capacity	Near-term ADT	Project-Added Trips	Near-term Plus Project ADT	LOS	LOS D or Better?
Lerdo Highway, east of I-5 NB Ramps	15,000	2,510	164	2,674	A	Yes
Buttonwillow Drive, north of I-5 NB On-Ramp	15,000	2,042	167	2,209	A	Yes
Buttonwillow Drive, south of I-5 SB Off-Ramp	15,000	4,126	159	4,285	A	Yes
7th Standard Road, west of I-5 SB On-Ramp	15,000	6,281	0	6,281	A	Yes
7th Standard Road, east of I-5 NB Off-Ramp	15,000	5,070	259	5,329	A	Yes
Wasco Way, south of 7th Standard Road	15,000	279	352	631	A	Yes
Hageman Road, west of I-5 SB Ramps	15,000	6,874	478	7,352	A	Yes
Hageman Road, east of Tracey Avenue	15,000	5,413	798	6,211	A	Yes

Source: Dudek 2025

Note:

[1] Capacity determined from Table 4.3-2, *Roadway Capacities*, per the Metropolitan Bakersfield General Plan Update EIR for 2-lane collector roadways.

Key: ADT = average daily trips; I-5 = Interstate 5; LOS = level of service; NB = northbound; SB = southbound

Operation

Operation of the projects included in the analysis of cumulative impacts would include vehicle trips associated with a recreational vehicle park, logistics facilities and transload with short-term storage, and truck stops. These projects would generate a substantial number of trips, specifically for heavy-duty (4+-axle) and medium-duty (3-axle) truck trip generation, due to the standard required equipment and loads necessary for the delivery and storage of goods with cold-storage capacities and truck stops that accommodate heavy-duty diesel trucks. These heavy- and light-duty trucks would have a greater impact on intersection and roadway segment operation when compared to typical passenger cars associated with other cumulative projects such as the RV camping park.

However, as stated above, the TIS estimated that on a typical weekday project operations would generate 40 daily trips, with seven trips during the PM peak hours and seven trips during the AM peak hours, which is less than 50 peak hour trips or the minimum required for analysis pursuant to the County's guidelines. Therefore, although certain intersections and roadway segments may operate at unacceptable levels of service due to cumulative increases in traffic, Project-generated trips would not be cumulatively considerable. Further, other projects included in the analysis of cumulative impacts will be subject to their own transportation analysis and review by the County and Caltrans, at which time Project-specific intersection improvements may be warranted to improve the intersection LOS to an acceptable level pursuant to the KCGP.

Decommissioning

As described above, it is assumed that decommissioning activities will be similar to construction activities given similarities between the activities and tasks associated with each (for example, number of workers and types of equipment required). Consequently, it is assumed that proposed Project decommissioning activities will generate trip generation rates that will affect the same roadway intersections and segments as would occur with construction-related traffic. However, unlike the construction conditions described above, whereby multiple projects included in the analysis of cumulative impacts were assumed to be under construction at the same time, decommissioning would likely occur while the other projects included in the analysis of cumulative impacts are in operation. Further, it cannot be determined what other projects will be established or under consideration at the time that decommissioning would occur. Therefore, an analysis of cumulative impacts associated with decommissioning activities would be unduly speculative.

Guidelines Section 15064.3(b) Consistency

As described in Impact 4.15-2 (above), the CEQA Guidelines do not provide a VMT significance threshold and Kern County does not have an adopted threshold for evaluating VMT-related impacts. To establish a baseline for daily VMT in the area, Kern COG provided VMT by TAZ in the proposed Project study area, which includes the average trip length for construction and decommissioning personnel traveling to and from the site, which is estimated to be 18 miles. This VMT is less than the lowest baseline average VMT of 32.5 miles, in which the cumulative projects are located.

Further, operation of the proposed Project would require up to 20 full-time employees, who are anticipated to commute from within Kern County. There are populous cities within 4 miles of the Project site (City of Bakersfield, City of Shafter, and community of Buttonwillow) from which it is likely that the employees would commute. Also, as described above, the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR 2018) provides a screening criterion to determine if a VMT analysis is warranted for a project. If a project will generate fewer than 110 trips per day, it does not require a VMT analysis and may be assumed to cause insignificant transportation impacts regarding VMT. The TIS prepared for the proposed Project estimated that proposed Project O&M activities would generate 40 daily trips and, therefore, is not anticipated to make a cumulatively considerable contribution to a significant cumulative impact involving VMT.

Finally, other projects included in the analysis of cumulative impacts would be subject to their own transportation analysis and review by the County and Caltrans, at which time Project-specific VMT would be analyzed and, if required, would be subject to Project-specific mitigation measures to reduce VMT.

Therefore, the proposed Project will not make a cumulatively considerable contribution to a significant cumulative impact regarding VMT.

Geometric Design Features/Emergency Access

If construction of the projects included in the analysis of cumulative impacts would occur at the same time, a significant, cumulative impact regarding hazards and emergency access could occur, as these projects would add a substantial number of heavy- and medium-duty vehicles to rural roadways. Construction of the logistics facility would likely introduce a considerable number of vehicles on roadways, which could create changed traffic patterns and obstacles on roadways, thereby potentially increasing roadway hazards and emergency access in addition to those that the proposed Project would create. Therefore, the proposed Project has the potential to make a cumulatively considerable contribution to a significant cumulative impact regarding the introduction of obstacles on roadways and impairing emergency access.

To address the proposed Project's contribution to cumulative impacts associated with roadway hazards and emergency access, construction and decommissioning activities would be subject to Mitigation Measure MM 4.15-2. As described above, these measures would require the Project proponent to prepare, and obtain approval of, a Construction Traffic Control Plan that satisfies certain requirements including, but not limited to, obtaining Encroachment Permits for the use of oversized vehicles that will utilize county-maintained roads and use of California Highway Patrol or a pilot car escort, in compliance with the CVC and California Street and Highway Codes. Additionally, Mitigation Measure MM 4.15-2 would require the Project proponent to obtain required permits for all oversized vehicles used on public roadways during construction, obtain approval of a Construction Traffic Control Plan, and identify anticipated construction delivery times and vehicle travel routes in advance to minimize construction traffic during AM and PM peak hours. This would ensure that construction-related oversize vehicle loads comply with applicable requirements of the CVC and California Street and Highway Code including, but not limited to, requirements regarding licensing, size, weight, load, and roadway encroachment of construction

vehicles. Therefore, with the implementation of Mitigation Measure MM 4.15-2, the proposed Project would not make a cumulatively considerable contribution to cumulative impacts associated with geometric hazards and/or emergency access.

Further, given the relatively small number of vehicle trips and types of vehicles that would be used, project operations and maintenance activities are unlikely to make a cumulatively considerable contribution to impacts regarding geometric hazards and/or emergency access. As stated above, proposed Project operation/maintenance activities are estimated to produce 40 ADT, with seven trips during the PM peak hours and seven trips during the AM peak hours. These trips consist of worker commuter trips and are unlikely to involve large, heavy-duty, and/or oversized vehicles that could present unique hazards or unduly impede emergency access. Therefore, proposed Project operations and maintenance activities will not make a cumulatively considerable contribution to a significant impact involving roadway hazards and/or emergency access.

Finaly, similar to the proposed Project, other projects included in the analysis of cumulative impacts would be evaluated during the environmental review process to assess construction trip related impacts to geometric design and emergency access. At the time of Project-specific review, mitigation measures to reduce the likelihood of hazards during project construction would be developed and applied, if required. Further, all projects included in the analysis of cumulative impacts would be subject to Kern County Development Standards, specifically Chapter VI, Site Access Design, Section 106-3, which requires access drives to be placed so that they intersect at 90 degrees with public streets. This would reduce the potential for dangerous intersections or sharp curves that could increase hazards due to geometric design features. Additionally, the projects included in the analysis of cumulative impacts are not associated with activities that are incompatible and would not cause road blockages, or impact sight distance and visual impairment. Specifically, the truck stops would be located adjacent to I-5 and likely would involve heavy- and medium-duty trucks to and from their corresponding Project sites, which is similar to existing interstate travel. Finally, the logistics center would be required to adhere to all County Development Standards and likely will be subject to Project-specific transportation and traffic analysis, thereby reducing the potential for hazardous circulation patterns within the Project site.

Midway Substation Upgrades

PG&E would modify the Midway Substation's 500 kV yard within their property boundary to accommodate the proposed Project's interconnection. Up to 38.6 acres would be impacted by the proposed Project. PG&E would install and trench underground several fiber-optic lines to the west of the gen-tie line route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest. Up to four 175-foot-tall LSTs TSPs would support the proposed transmission line and the proposed Project's interconnection.

Impacts related to the consistency of programs, plans, ordinances, or policies, hazards to roadways, and emergency response are potentially significant, however, with incorporation of Mitigation Measures 4.15-1 and 4.15-2, the potential for these impacts would be reduced. Additionally, the PG&E work would be completed in accordance with PG&E's standard best management practices.

Summary

Assuming that the peak period of construction for all projects included in the analysis of cumulative transportation impacts occur at the same time, a total of 15,523 daily trips would be generated, with 1,636 trips during AM peak hours and 1,681 trips during PM peak hours, adding a significant number of oversized vehicles on roadways. Additionally, construction of the projects included in the analysis of cumulative impacts would require delivery of heavy construction equipment and materials, and oversized vehicles on roadways would increase the potential for hazards on the roadways and impede emergency access. However, with implementation of Mitigation Measure MM 4.15-1 and Mitigation Measure MM 4.15-2, which require the implementation of a Construction Traffic Control Plan and compliance with standards that must be satisfied in order to obtain Encroachment Permits, the proposed Project would not make a cumulatively considerable contribution to this significant cumulative impact. Further, other projects included in the analysis of cumulative transportation impacts will be subject to Project-specific analysis and mitigation (as needed) for construction-related impacts.

Magnolia Avenue at 7th Standard Road and the I-5 Northbound Ramps at Tracey Avenue intersections are forecast to operate at LOS E during PM peak hours. Mitigation Measure 4.15-1 would ensure methods to maintain LOS at acceptable levels. However, Mitigation Measure MM 4.15-2 would require the Project proponent to implement a Construction Traffic Control Plan which would include measures such as efficient timing of deliveries and heavy equipment, and to the extent feasible, avoidance of arrivals and departures during AM and PM peak hours. With the implementation of Mitigation Measure MM 4.15-2, the proposed Project will not make a cumulatively considerable contribution to the significant cumulative impacts regarding LOS at the Magnolia Avenue at 7th Standard Road and the I-5 Northbound Ramps at Tracey Avenue intersections. Further, each project included in the analysis of cumulative impacts would be required to undergo Project-specific analysis, with consultation with Kern County Public Works and Caltrans to ensure adequate intersection and roadway LOS.

Finally, the proposed Project has the potential to make a cumulatively considerable contribution to a significant cumulative impact regarding the introduction of obstacles on roadways and impairing emergency access. However, with implementation of Mitigation Measure MM 4.15-2, the Project proponent would be required to obtain Encroachment Permits for the use of oversized vehicles and implement measures to avoid impediments to emergency access. Similarly, each project included in the analysis of cumulative impacts would be required to undergo Project-specific analysis and, if warranted, would be subject to the same or similar types of mitigation measures to reduce their individual contributions to this cumulative impact. Therefore, with the implementation of Mitigation Measures MM 4.15-1 and MM 4.15-2, the proposed Project will not make a cumulatively considerable contribution to a significant cumulative impact due to the introduction of obstacles on roadways and impairing emergency access.

Mitigation Measures

Implement Mitigation Measures MM 4.15-1 and MM 4.15-2.

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

Section 4.16

Tribal Cultural Resources

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Section 4.16
Tribal Cultural Resources

4.16.1 Introduction

This section of the Draft Environmental Impact Report (EIR) provides contextual background information and the regulatory setting regarding tribal cultural resources for the proposed Buttonbush Solar and Storage Project (proposed Project). This section also analyzes the impacts to tribal cultural resources that could result from implementation of the proposed Project and identifies mitigation measures to address adverse impacts.

A description of the environmental setting (affected environment) for existing tribal cultural resources related to the proposed Project is presented below in Section 4.16.2, *Environmental Setting*, and in Section 4.5, *Cultural Resources*. The regulatory setting applicable to tribal cultural resources is presented in Section 4.16.3, *Regulatory Setting*, and the discussion of impacts and associated mitigation measures is presented in Section 4.5.4, *Impacts and Mitigation Measures*.

The analysis in this section is based on the results of the Native American consultation that Kern County (County) conducted for purposes of compliance with Senate Bill 18 (SB 18) and Assembly Bill 52 (AB 52) (Appendix E.2). Additionally, this analysis is informed by the *Archeological Resources Inventory and Evaluation Report* prepared by Dudek in 2025 (Appendix E.1).

4.16.2 Tribal Cultural Resources Impact Analysis Terminology

Definition of "Tribal Cultural Resources"

Pursuant to the definition set forth in the Public Resources Code (PRC) (Section 20174(a)), "tribal cultural resources" include the following:

> *(1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:*
>
> *(A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.*
>
> *(B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.*
>
> *(2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1* [of the PRC]. *In applying the criteria set forth in subdivision (c) of Section 5024.1* [of the PRC] *for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.*

In addition, a cultural landscape that meets the criteria of PRC Section 21074(a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape. (PRC Section 21074(b)).

Further, a historical resource described in PRC Section 21084.1, a unique archaeological resource defined in PRC Section 21083.2(g), or a "nonunique archaeological resource" as defined in (PRC Section 21083.2(h)) may also be a tribal cultural resource if it conforms to the criteria in (PRC Section 20174(a)).

See Section 4.5, *Cultural Resources*, for specific, relevant tribal cultural resources that are considered in this Tribal Cultural Resources section.

Definition of "Project Footprint"

For this Tribal Cultural Resources section, the "project footprint" is defined as the area encompassing the proposed Project and associated infrastructure.

4.16.3 Environmental Setting

See Section 4.5.2, *Cultural Resources – Archaeological Context*, of this Draft EIR for the description of the tribal cultural resources environmental setting.

Native American California Environmental Quality Act Consultation (AB 52)

PRC Section 21080.3.1(d) requires that within 14 days of a lead agency determining that an application for a project is complete, or a decision by a public agency to undertake a project, the lead agency must provide formal notification to the designated contact, or a tribal representative, of California Native American Tribes as defined in PRC Section 21073 that are traditionally and culturally affiliated with the geographic area of the project and who have requested in writing to be informed by the lead agency in accordance with PRC Section 21080.3.1(b). Tribes interested in consultation must respond in writing within 30 days from receipt of the lead agency's formal notification, and the lead agency must begin consultation within 30 days of receiving the tribe's request for consultation. (PRC Sections 21080.3.1(d) and 21080.3.1(e)).

Pursuant to these Native American California Environmental Quality Acy (CEQA) consultation requirements, on February 4, 2024, Kern County staff sent letters to contacts of California Native American Tribes affiliated with the geographic area of the proposed Project. A list of tribes that were contacted about the proposed Project and the results of these outreach efforts are summarized below in **Table 4.16-1:** *Native American Consultation Results*. As shown, County staff received one response from the Yuhaaviatam of San Manuel Nation regarding the proposed Project, available in Appendix E.2. Pursuant to PRC Section 21080.3.2(b)(1), Kern County as the lead agency considers the consultation concluded, as the County did not receive any responses with requests for consultation.

Table 4.16-1: Native American CEQA Consultation Results

Tribe	Correspondence	Response
Tejon Indian Tribe	Letter to Candice Garza, CRM Scheduler, on 2/5/2024.	No response.
Torres Martinez Desert Cahuilla Indians	Letter to Michael Mirelez, Cultural Resources Coordinator, on 2/5/2024.	No response.
Twenty-Nine Palms Band of Mission Indians	▪ Letter to Darrell Mike, Tribal Chairman, on 2/5/2024. ▪ Letter to Anthony Madrigal Jr., Tribal Grants Administrator, on 2/5/2024.	No response.
Yuhaaviatam of San Manuel Nation	Letter to Alexandra McCleary, Ph.D., on 2/5/2024.	Indicated the proposed Project is located outside of Serrano ancestral territory and does not request to receive consulting party status.

Native American Government Code Consultation (SB 18)

Pursuant to the California Government Code Section 65352.3, prior to the amendment of the Kern County General Plan (KCGP), the County must consult with California Native American Tribes for the purpose of preserving specified places, features, and objects that are located within the County's jurisdiction. Specifically, the County must consult a list of potentially affected Native American Tribes received from the Native American Heritage Commission (NAHC). The Native American tribe(s) must then be notified of the intended amendments to the KCGP and offered the opportunity to consult regarding traditional tribal cultural places within the proposed plan area. Once the County contacts the tribes on the NAHC-provided list, each tribe has 90 days to respond and accept or forgo the opportunity to consult. (Government Code Section 65352.3(a)(2))

Given the Project proposes to amend the KCGP, County staff requested a tribal consultation list from the NAHC. On February 7, 2024, NAHC replied with a tribal contact list. As indicated in the *Archeological Resources Inventory and Evaluation Report* prepared by Dudek in May 2025 (Appendix E.1), a Sacred Lands File (SLF) search through the NAHC was negative.

On February 12, 2024, County staff sent letters to tribal organizations on the NAHC contact list; **Table 4.16-2:** *Native American Government Code Consultation Results,* lists the tribes that County staff consulted and the responses that they received. As shown, on February 27, 2024, County staff received a response from Samantha McCarthy of the Santa Rosa Rancheria Tachi Yokut Tribe. In the response, Ms. McCarthy indicated that: (1) the Tribe was deferring to the Tejon Indian Tribe due to the location of the proposed Project; (2) the proposed Project vicinity was considered highly sensitive; and (3) recommended that the Tejon Indian Tribe conduct tribal monitoring. To date, County staff has not received any other responses or correspondence regarding the proposed Project from Native American tribal representatives.

Table 4.16-2: Native American Government Code Consultation Results

Tribe	Correspondence	Response
Kern Valley Indian Community	▪ Letter to Brandy Kendricks, Tribal Member Monitor, on 2/12/2024. ▪ Letter Robert Robinson, Chairperson, on 2/12/2024.	No response.
Kitanemuk and Yowlume Tejon Indians	Letter to Delia Dominguez, Chairperson, on 2/12/2024.	No response.
Northern Chumash Tribal Council	Letter to Violet Walker, Chairperson, on 2/12/2024.	No response.
Santa Rosa Rancheria Tachi Yokut Tribe	▪ Letter to Shana Powers, Tribal Historic Preservation Officer, on 2/12/2024. ▪ Letter to Samantha McCarthy, Cultural Specialist II, on 2/12/2024. ▪ Letter to Nichole Escalon, Cultural Specialist I, on 2/12/2024.	Email response from Samantha McCarthy on 2/27/2024: "Thank you for contacting the Santa Rosa Rancheria Tachi Yokut Tribe regarding: SB 18 Application for GPA-SPA-CUP-Zone Change for the Buttonbush Solar Photovoltaic and Hydrogen Facility- (PP24407). Due to the location of this proposed Project the Tribe will be deferring to the Tejon Indian Tribe. The Tribe has major concerns regarding this proposed Project as the area is highly sensitive and is recommending tribal monitoring from Tejon. If you have any questions, comments, and or concerns please contact myself or the SRR Cultural Department. Thank you."
Tejon Indian Tribe	Letter to Candice Garza, CRM Scheduler, on 2/12/2024.	No response.
Tubatulabals of Kern Valley	Letter to Robert Gomez, Chairperson, on 2/12/2024.	No response.
Tule River Indian Tribe	Letter to Neil Peyron, Chairperson, on 2/12/2024.	No response.

Key: CRM = cultural resource management; SB = Senate Bill

4.16.4 Regulatory Setting

Federal

See Section 4.5.3, *Regulatory Setting – Federal*, of this Draft EIR for a summary of federal regulations that pertain to tribal cultural resources.

State

Native American Heritage Commission

Section 5097.91 of the California PRC established the NAHC, whose duties include the inventory of places of religious or social significance to Native Americans and the identification of known

graves and cemeteries of Native Americans on private lands. Section 5097.98 of the PRC specifies a protocol to be followed when the NAHC receives notification of a discovery of Native American human remains from a county coroner. The NAHC will notify the most likely descendant. With the permission of the landowner, the most likely descendant may inspect the site of discovery. Recommendations must be provided within 48 hours of notification of the most likely descendant by the NAHC and being provided access to the project boundary. The most likely descendant may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

California Environmental Quality Act

AB 52 was approved by California State Governor Edmund Gerry "Jerry" Brown, Jr. on September 25, 2014. The act amended California PRC Section 5097.94, and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. Further, on July 30, 2016, the California Natural Resources Agency adopted the final text for tribal cultural resources update to Appendix G of the CEQA Guidelines, which the Office of Administrative Law approved on September 27, 2016.

AB 52 applies (in pertinent part) specifically to projects for which a Notice of Preparation is filed indicating that an EIR must be prepared, on or after July 1, 2015. The primary intent of AB 52 is to include California Native American Tribes early in the environmental review process and to establish a new category of resources related to Native Americans that require consideration under CEQA, known as tribal cultural resources. As stated above, PRC Sections 21074(a)(1) and -(2) define "tribal cultural resources" that are subject to consideration pursuant to AB 52.

PRC Section 21080.3.1 requires that within 14 days of a lead agency determining that an application for a project is complete, or a decision by a public agency to undertake a project, the lead agency must provide formal notification to the designated contact, or a tribal representative, of California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the proposed Project (as defined in PRC Section 21073) and who have requested in writing to be informed by the lead agency (PRC Section 21080.3.1(b)). Tribes interested in consultation must respond in writing within 30 days from receipt of the lead agency's formal notification and the lead agency must begin consultation within 30 days of receiving the tribe's request for consultation (PRC Section 21080.3.1(d) and 21080.3.1(e)).

PRC Section 21080.3.2(a) identifies the following as potential consultation discussion topics: the type of environmental review necessary; the significance of tribal cultural resources; the significance of the proposed Project's impacts on the tribal cultural resources; proposed Project alternatives or appropriate measures for preservation; and mitigation measures. Consultation is considered concluded when either: (1) the parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or (2) a party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached (PRC Section 21080.3.2(b)).

If a California Native American tribe has requested consultation pursuant to PRC Section 21080.3.1 and has failed to provide comments to the lead agency, or otherwise failed to engage in the consultation process, or if the lead agency has complied with Section 21080.3.1(d) and the California Native American tribe has failed to request consultation within 30 days, the lead agency may certify an EIR (*Ibid* Sections 21082.3(d)(2) and -(3)).

PRC Section 21082.3(c)(1) states that any information including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public without the prior consent of the tribe that provided the information. If the lead agency publishes any information submitted by a California Native American tribe during the consultation or environmental review process, that information would be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public.

See above for a summary of the responses received from tribal representatives.

California Government Code

As stated above, pursuant to Government Code Section 65352.3, the County must consult with California Native American Tribes before adopting or amending the General Plan for the purpose of preserving specified places, features, and objects that are located within the County's jurisdiction, given that the proposed Project involves an amendment to the KCGP. Specifically, the County must consult tribal contacts that were included on the list of potentially affected Native American Tribes that the County received from the NAHC. See above for a summary of the responses received from tribal representatives.

However, Government Code Sections 7927.000 and 7927.005 set forth specific exemptions for the disclosure of certain public records to protect Native American and archaeological sites from unauthorized excavation, looting, and vandalism. Government Code Section 7927.000(a) authorizes public agencies to withhold information from the public relating to "Native American graves, cemeteries, and sacred places." Further Government Code Section 7927.005 specifically exempts from disclosure requests for "… records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the … [NAHC], another State agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a State or local agency."

According to the Tribal Consultation Guidelines: Supplement to General Plan Guidelines (Governor's Office of Planning and Research 2005), the following are the contact and notification responsibilities of local governments:

- Prior to the adoption or any amendment of a general plan or specific plan, a local government must notify the appropriate tribes (on the contact list maintained by the NAHC) of the opportunity to conduct consultations for the purpose of preserving, or mitigating impacts to, cultural places located on land within the local government's jurisdiction that is affected by the proposed plan adoption or amendment. Tribes have 90 days from the date on which they receive notification to request consultation, unless a shorter timeframe has been agreed to by the tribe. (Government Code Section 65352.3.)
- Prior to the adoption or substantial amendment of a general plan or specific plan, a local government must refer the proposed action to those tribes that are on the NAHC contact list and have traditional lands located within the city or county's jurisdiction. The referral must allow a 45-day comment period. (Government Code Section 65352.) Notice must be sent regardless of whether prior consultation has taken place. Such notice does not initiate a new consultation process.
- Local government must send a notice of a public hearing, at least 10 days prior to the hearing, to tribes who have filed a written request for such notice. (Government Code Section 65092.)
- In accordance with SB 18 and the California Tribal Consultation guidelines, the appropriate native groups were consulted with respect to the project's potential impacts on Native American places, features, and objects.

California Native American Graves Protection and Repatriation Act of 2001

Codified in the California Health and Safety Code Sections 8010-8030, the California Native American Graves Protection and Repatriation Act (Cal NAGPRA) is consistent with the federal NAGPRA. Intended to "provide a seamless and consistent state policy to ensure that all California Indian human remains and cultural items be treated with dignity and respect," Cal NAGPRA also encourages and provides a mechanism for the return of remains and cultural items to lineal descendants, Section 8025 established a Repatriation Oversight Commission to oversee this process. The Cal NAGPRA also provides a process for non-federally recognized tribes to file claims with agencies and museums for repatriation of human remains and cultural items.

California Health and Safety Code, Sections 7050 through 7053

California Health and Safety Code Section 7050.5, declares that, in the event of the discovery of human remains outside of a dedicated cemetery, all ground disturbance must cease, and the county coroner must be notified. Sections 7052 and 7052.5 establish a felony penalty for mutilating, disinterring, or otherwise disturbing human remains, except by relatives or to dispose as permitted by law. Section 7053 makes it a misdemeanor to arrest, attach, detain, or claim to detain any human remains for any debt or demand, or upon any pretended lien or charge, or to fail to release any human remains, the personal effects, or any certificate or permit required under Division 102 (commencing with Section 102100) upon the delivery of authorization for the release signed by the next of kin or by any person entitled to the custody of the remains.

Local

Kern County General Plan

The proposed Project is subject to applicable policies and measures of the KCGP. The Land Use, Open Space, and Conservation Element of the KCGP include the following policies and implementation measures related to cultural resources that apply to the proposed Project:

Chapter 1. Land Use, Open Space, and Conservation Element

1.10.3. – Archaeological, Paleontological, Cultural, and Historical Preservation

Policy

Policy 25. The County will promote the preservation of cultural and historic resources that provide ties with the past and constitute a heritage value to residents and visitors.

Implementation Measures

Implementation Measure N. The County shall develop a list of Native American organizations and individuals who desire to be notified of proposed discretionary projects. This notification will be accomplished through the established procedures for discretionary projects and CEQA documents.

Implementation Measure O. On a project-specific basis, the County Planning Department shall evaluate the necessity for the involvement of a qualified Native American monitor for grading or other construction activities on discretionary projects that are subject to a CEQA document.

4.16.5 Impacts and Mitigation Measures

Methodology

Impacts on tribal cultural resources could result from ground-disturbing activities in conjunction with the proposed Project. Ground-disturbing activities include Project-related excavation, grading, trenching, vegetation clearance, the operation of heavy equipment, or other surface and subsurface disturbance that could damage or destroy surficial or buried tribal cultural resources including a landscape, sacred area, or object with cultural value to a California Native American tribe. As described above, the Project proponent prepared an Archaeological Resources Inventory and Evaluation Report, which: (1) includes the results of the SLF search conducted by the NAHC and other AB 52 and SB 18 notification letters sent to Native American groups and individuals indicated by the NAHC to solicit information regarding the presence of tribal cultural resources; and (2) evaluates the proposed Project's potential effects on significant tribal cultural resources. Using the aforementioned resources and professional judgment, impacts were analyzed according to CEQA significance criteria described below.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the CEQA Guidelines, to determine if a project could potentially have a significant adverse effect on tribal cultural resources.

A project would normally be considered to have a significant impact if it would cause a substantial adverse change in the significance of a tribal cultural resource, defined in CEQA Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k), or

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC Section 5024.1(c). In applying the criteria set forth in PRC Section 5024.1(c), the lead agency shall consider the significance of the resource to a California Native American tribe.

Project Impacts

Impact 4.16-1a: Would the Project have the potential to cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k)?

The Project site and surroundings are generally located in an area of tribal cultural sensitivity. Based on Dudek's *Archaeological Resources Inventory and Evaluation Report* (Appendix E.1), a combination of archaeological investigations identified cultural resources of Native American origin and/or association at the Project site. The distribution of archaeological material demonstrates a potential pattern of intensive and/or extended indigenous use relative to the natural prehistoric landscape, most specifically, Tulare Lake and Buena Vista Slough.

As stated above, neither the NAHC's SLF search nor the AB 52 and SB 18 consultations indicated the presence of known, defined tribal cultural resources within or immediately adjacent to the Project site—however, the Santa Rosa Rancheria Tachi Yokut Tribe responded to the SB 18 tribal consultation stating that the Tribe was deferring to the Tejon Indian Tribe due to the location of the proposed Project, but the proposed Project vicinity was considered highly sensitive and the Tejon Tribe should monitor ground disturbance activities. However, the Tejon Indian Tribe did not respond to the tribal consultation outreach.

Although proposed Project activities are not proposed within known, recorded sites, proposed Project construction, grading, and excavation activities have the potential to unearth previously undiscovered, intact tribal cultural materials. If such materials are found, a potentially significant impact may occur. To avoid potential impacts to tribal cultural resources caused by the proposed Project, the Project proponent must implement Mitigation Measure MM 4.5-4 (see Section 4.5, *Cultural Resources*), which requires that qualified Native American monitors be retained from a Kern County federally recognized tribe for all construction activities and, if resources are discovered, that they be protected in place or removed and curated pursuant to Mitigation Measure MM 4.5-3. If buried human remains are unearthed during proposed Project activities, the Project proponent must implement Mitigation Measure MM 4.5-6 which includes procedures for recording and treating any human remains in consultation with the county coroner. Mitigation Measure MM 4.5-3 requires that these items be protected, preserved and treated in accordance with applicable laws, regulations, and guidelines (see Section 4.5, *Cultural Resources,* for Mitigation Measures MM 4.5-1 through MM 4.5-6).

Midway Substation Upgrades

To accommodate the requests, PG&E proposes to enlarge Midway Substation's 500 kV yard within the PG&E owned Midway Substation property boundaries. The PG&E Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities as part of the proposed Project. To support the proposed Buttonbush Solar and Storage Project's communication infrastructure, PG&E may install two 4-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest. This fiber-optic line is critical for the safe and efficient operation of the proposed Project. The fiber-optic line route will be trenched underground from the Midway Substation to the Point of Change of Ownership.

PG&E proposes to remove the existing precast security wall at the northwest side of the Midway Substation and replace it with a new 12-foot wall, similar in appearance and material, approximately 510 feet north and 140 feet west of the existing walls of the 500 kV yard within Midway Substation. Grading of the connection area may be required and prior to any ground-disturbing activities. PG&E would acquire all necessary permits. Within the proposed graded area of the Midway Substation, PG&E would install approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker. This would include installing equipment foundations and concrete trenches, equipment cabinets, bus structures, communication lines, conduits, pull boxes, and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, PG&E would install up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from Midway Substation to the Point of Change of Ownership for the proposed project. Up to four approximately 175-foot-tall lattice steel towers or tubular steel poles would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads.

Similar to other portions of the Project site, neither the NAHC's SLF search nor the AB 52 and SB 18 consultations indicated the presence of known, defined tribal cultural resources within or immediately adjacent to the areas of proposed development on the Midway Substation parcels. Further, as part of their response to SB 18 tribal consultation, the Santa Rosa Rancheria Tachi Yokut Tribe did not identify this area as being particularly sensitive in comparison to other areas of the Project site; however, as described above, the Santa Rosa Rancheria Tachi Yokut Tribe generally identified the entirety of the Project site as being highly sensitive and suggested that the Tejon Tribe should monitor ground disturbance activities. As stated above, the Tejon Indian Tribe did not respond to the tribal consultation outreach.

Proposed Project construction, grading, and excavation activities within the Midway Substation parcels have the potential to unearth previously undiscovered, intact tribal cultural materials. If such materials are found, a potentially significant impact may occur. Therefore, to avoid potential impacts to tribal cultural resources, the Project proponent must implement the Native American monitoring requirements of Mitigation Measure MM 4.5-4 and, if resources are discovered, implement the protective and curative measures pursuant to Mitigation Measure MM 4.5-3. Further, if buried human remains are unearthed during proposed Project activities, the Project proponent must implement Mitigation Measure MM 4.5-5 to protect, preserve and treat the remains in accordance with applicable laws, regulations, and guidelines. Finally, Pacific Gas & Electric (PG&E) has adopted Best Management Practices (BMPs) (Appendix M) that apply to all PG&E construction projects, which include a BMP that requires the implementation of protection and notification measures if previously unknown cultural resources are encountered during construction.

Summary

With the implementation of Mitigation Measures MM 4.5-1 through MM 4.5-6, proposed Project impacts regarding tribal cultural resources would be less than significant.

Mitigation Measures

Mitigation Measures MM 4.5-1 through MM 4.5-6 (Section 4.5, *Cultural Resources*)

Level of Significance after Mitigation

Less than significant.

Impact 4.16-1b: Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in CEQA Section 21074 as a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe that is a resource determined by the Lead Agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC Section 5024.1(c)? In applying the criteria set

forth in PRC Section 5024.1(c), the Lead Agency shall consider the significance of the resource to a California Native American tribe.

As described above in Impact 4.16-1a, although activities are not proposed within known, recorded sites, proposed Project construction, grading, and excavation activities have the potential to unearth previously undiscovered, intact tribal cultural materials. However, the Project proponent would be required to implement Mitigation Measures MM 4.5-1 through MM 4.5-5 to avoid and/or mitigate significant impacts to tribal cultural resources. Adherence to Mitigation Measure MM 4.5-4 requires that qualified Native American monitors be retained from a Kern County federally recognized tribe for all construction activities. Mitigation Measure MM 4.5-3 includes specific measures that a qualified archaeologist must implement if any resources are discovered onsite and includes a requirement that Kern County contact Native American representatives in determining treatment for unearthed cultural resources. Mitigation Measure MM 4.5-6 will require the Project proponent to stop all work in the vicinity of any human remains that are uncovered during proposed Project construction, and implement the protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines. (See Section 4.5, *Cultural Resources,* for Mitigation Measures MM 4.5-1 through MM 4.5-6).

PG&E Midway (Midway) Substation Upgrades

As described above in Impact 4.16-1a, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed photovoltaic solar facilities with the Midway Substation. Construction, grading, and excavation activities will be required for the installation of these facilities. As described above, PG&E would implement a BMP that requires the implementation of protection and notification measures if previously unknown cultural resources are encountered during construction.

Summary

With the implementation of Mitigation Measures MM 4.5-1 through MM 4.5-6, proposed Project impacts regarding tribal cultural resources would be less than significant.

Mitigation Measures

Mitigation Measures MM 4.5-1 through MM 4.5-6 (Section 4.5, *Cultural Resources*)

Level of Significance after Mitigation

Less than significant.

4.16.6 Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

Cumulative impacts for a project are considered significant if the incremental effects of the individual projects are considerable when viewed in connection with the effects of past projects, and the effects of other projects located in the vicinity of the proposed Project site (PRC Section 15355). The projects included in this analysis of cumulative impacts are described in Section 3.13, *Cumulative Projects*, of this Draft EIR, and include projects located in the southern San Joaquin Valley, in unincorporated Kern County, with an emphasis on the specific projects located within proximity to the Project site. This geographic scope of analysis is appropriate because the tribal cultural resources within this area are expected to be similar to those that occur on the Project site because of their proximity to, and the similar environments, landforms, and hydrology to those located on, or within proximity to, the Project site. This is a large enough area to encompass any effects of the proposed Project on cultural resources that may combine with similar effects caused by other past, current, and reasonably foreseeable future projects, and provides a reasonable context wherein cumulative actions could affect cultural resources.

As described above, the proposed Project has the potential to contribute to cumulative impacts regarding tribal cultural resources, resulting from other projects located within the same region as the proposed Project. Specifically, other projects included in the analysis of cumulative impacts involving construction activities could adversely affect tribal cultural resources, particularly previously unknown, subsurface resources that are unearthed during ground disturbance activities. However, similar to the proposed Project, each project included in the analysis of cumulative impacts which has the potential to adversely affect tribal cultural resources, would be subject to mitigation that complies with applicable state and federal laws and regulations. Mitigation measures would include (as applicable) standard conditions of approval that require monitoring of construction sites in proximity to known resources, immediate cessation of construction activity upon discovery of unidentified human remains, and the protection (in situ and/or curated in a repository) of cultural resources that are discovered, similar to those described above that would apply to the proposed Project.

Further, regardless of the impacts of other projects included in the analysis of cumulative impacts, the proposed Project's incremental contribution to cumulative impacts involving tribal cultural resources would not be cumulatively considerable or significant with the implementation of Mitigation Measures MM 4.5-1 through MM 4.5-6.

Therefore, with the implementation of Mitigation Measures MM 4.5-1 through MM 4.5-6, the proposed Project will not make a cumulatively considerable contribution to a significant cumulative impact involving tribal cultural resources.

Midway Substation Upgrades

As described above in Impact 4.16-1, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation.

During construction, activities such as grading or excavating could unearth previously undiscovered tribal cultural materials. However, PG&E should implement MM 4.5-4 if resources are discovered, and follow protocols outlined in Mitigation Measure MM 4.5-3 in the event of discovery. Additionally, PG&E has adopted BMPs that apply to all construction projects that requires the implementation of protection and notification measures. Further, other projects included in the analysis of cumulative impacts would be subject to similar mitigation measures that would reduce potential impacts on a project-by-project basis.

Summary

The proposed Project would not make a cumulatively considerable contribution to a significant cumulative impact involving tribal cultural resources.

Mitigation Measures

Implement Mitigation Measures MM 4.5-1 through MM 4.5-6 (Section 4.5, *Cultural Resources*).

Level of Significance after Mitigation

Less than significant.

Section 4.17

Utilities and Service Systems

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Section 4.17

Utilities and Service Systems

4.17.1 Introduction

This section of the Draft Environmental Impact Report (EIR) describes the environmental setting, regulatory setting, and environmental impacts of the proposed Buttonbush Solar and Storage Project (proposed Project) related to the demand for utilities and service systems (water supply, stormwater control, wastewater, solid waste disposal, electricity, natural gas, and telecommunications). It also describes the existing infrastructure and levels of service and evaluates whether improvements would be necessary to accommodate the proposed Project and identifies mitigation measures that would reduce such impacts.

The information and analysis in this section is based in part on the Project-specific *Preliminary Hydrology Study* (Westwood 2025) and the *Water Supply Assessment* (WSA) (Dudek 2025) (Appendix I.1 and Appendix I.2 of this Draft EIR) and the groundwater and *Sustainable Groundwater Management Act* (SGMA) planning information presented in Section 4.10, *Hydrology and Water Quality*, of this Draft EIR.

4.17.2 Environmental Setting

Geographically, Kern County (County) is California's third largest county, encompassing 8,161 square miles at the southern end of the Central Valley. The county is bounded by Kings, Tulare, and Inyo Counties to the north; Santa Barbara and San Luis Obispo Counties to the west; San Bernardino County and the Tehachapi Mountains and the Sierra Nevada Mountains to the east; and Los Angeles and Ventura Counties and the northern boundary of the Los Padres National Forest to the south.

The proposed Project would be located on 128 parcels across approximately 11,983 acres of privately owned land currently utilized for agricultural and vacant land in the central valley region of Kern County with residences at rural densities. There are several separate areas that constitute the Project site, which are all located within unincorporated Kern County north and east of the community of Buttonwillow, approximately 2 miles west of the City of Shafter, and approximately 7 miles southwest of the City of Wasco. Existing land uses surrounding the Project site consist largely of agriculturally zoned parcels with farm and/or rural residential uses. Rural residential development is located in the unincorporated community of Buttonwillow and within the proposed Project boundaries. Residential development also is present in the City of Shafter and the unincorporated community of Rio Bravo.

Water Supply

There are typically three sources of water supply: (1) natural environmental sources, (2) human-made sources, and (3) reclamation. Environmental sources include rivers, lakes, streams, and groundwater stored in aquifers. Human-created sources include runoff water that is treated and stored in reservoirs and other catchment structures and facilities. Reclaimed water is wastewater that has been conveyed to a treatment plant for contaminant removal to a sufficient degree that it may be used again for end-uses, such as irrigation. Reclaimed water is not potable (drinkable) and must be conveyed in a separate system to ensure that there is no possibility of direct human consumption and/or contamination. The Project site has no connection to a public water system. The Project site is located within the service area of three water agencies: Semitropic Water Storage District (SWSD), Shafter-Wasco Irrigation District's (SWID's) 7th Standard Annex, and Rosedale-Rio Bravo Water Storage District (RRBWSD). The water supply availability for this proposed Project is assessed from two primary sources: local groundwater from private wells on and within the vicinity of the proposed Project and water supplied by SWSD. Water supply may also be provided by the districts referenced above for portions of the proposed Project within their service areas.

A public water system is a system that provides water for human consumption through pipes or other constructed conveyances as a system that has 3,000 or more service connections. A public water system may be publicly or privately owned for the purpose of rendering it safe for human consumption, and includes collection, treatment, storage, and distribution facilities. An Urban Water Supplier refers to a water supplier, either public or private, that provides water for municipal purposes directly or indirectly to over 3,000 customers, or supplies more than 3,000 acre-feet (AF) of water per year. The Project site has no connection to a public water system, serving 3,000 or more service connections, nor an urban water supplier who serves 3,000 customers or supplies more than 3,000 acre-feet per year (AFY) as defined by the California Water Code (CWC) Section 10912. . The majority of the Project site is located within SWSD, which is a publicly owned agricultural water supplier. An agricultural water supplier is a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. This includes a supplier or contractor for water, regardless of the basis of right, that distributes or sells water for ultimate resale to customers. Per CWC Section 10826, agricultural water suppliers, similar to urban water suppliers, must submit an Agricultural Water Management Plan (AWMP) to the Department of Water Resources (DWR), including a description of the service area, quantity and quality of water supplies, annual water budget, analysis of the effect of climate change on supplies, description of water management activities, identification of water management objectives, information on efficient water management practices, and quantification of the efficiency of agricultural water use.

Additionally, the gen-tie portion of the proposed Project that connects to the Midway Substation, an existing Pacific Gas & Electric (PG&E) Substation south of the Project site which is proposed to be upgraded to support project implementation, intersects the service areas of Buena Vista Water Storage District (BVWSD) and Buttonwillow County Water District (BCWD), which are community water systems. A community water system is a public water system that supplies water to at least 15 service connections used by yearlong residents or regularly serves at least 25 yearlong residents of the area served by the system.

Imported Surface Water

The Project site is located in the West Side Canal, Goose Lake Slough-Jerry Slough, and Lower Poso Creek watersheds which are contained within the Tulare Lake Bed and Upper Poso hydrologic subbasins. The only natural surface water feature in the vicinity of the Project site is the Jerry Slough, an intermittent drainage that flows through the middle of the northern portion of the Project site (Appendix I.2). Other surface water features in the Project site consist of human-made conveyances and include the California Aqueduct, East Side Canal, Main Canal, and several other canals.

The Project site does not receive local surface water deliveries from a water agency. Instead, the Project site receives State Water Project (SWP) water, which is delivered by the water districts that serve the Project site.

The SWP is the nation's largest state-owned water and power generator, extending two thirds the length of California and more than 705 miles. The SWP collects its water from a collection of canals, pipelines, rivers, reservoirs, and hydroelectric power facilities beginning in Northern California and the Sacramento-San Joaquin River Delta to deliver water to 750,000 acres of farmland and 27 million people in Central and Southern California. The SWP delivers water to local and regional water agencies, irrigation districts, and municipalities, and not end user connections and, therefore, is not considered a public water system, rather a wholesale water provider. The SWP contractors consist of 29 public water agencies and local water districts that have long-term contracts with and managed by DWR. DWR manages and operates the SWP to ensure adequate water supplies are available to meet both human and environmental requirements under various hydrologic and legal conditions.

There are four different types of SWP deliveries including: Table A, Article 21, carryover, and turnback pool water. Table A allocations are based on each contractors' proportion of the SWP's maximum delivery capability of up to 4,172,786 AFY, as established in long-term water supply contracts developed between DWR and the contractors (which expire in 2035). Article 21 water is SWP water that contractors may receive on a short-term basis in addition to their Table A water and generally is available in wet water years when a surplus is available. Carryover water is unused Table A water that may be stored in the SWP's share of San Luis Reservoir for the contractor to use in the following year. Turnback pool water is Table A water that is sold to another contractor when a contractor determines their Table A allocation exceeds their water needs for the year. The reliability of SWP water delivery varies and depends on rainfall, snowpack, reservoir storage, pumping capacity of SWP facilities, and legal/regulatory restrictions.

Kern County Water Agency

Kern County Water Agency (KCWA) was created by a special act of the California Legislature in 1961 to contract with DWR and import SWP water to the region to supplement groundwater supplies and mitigate overdraft. KCWA is the second largest participant in the SWP and covers the entire Project site and the majority of the county. KCWA serves as the local contracting entity for the SWP and has 13 local water districts, including SWSD, SWID, RRBWSD, and BCWSD.

Semitropic Water Storage District

The SWSD was created in 1958 to secure SWP water for agricultural use, and receives water from the SWP via the California Aqueduct. In addition to SWP water, SWSD receives water from surface deliveries from Poso Creek, water transfers, and water banking. The SWSD is the largest water storage district in Kern County and provides water to approximately 130,000 irrigated acres and nearly 300 customers. The SWSD has a SWP Table A entitlement of 155,000 AFY, however, historically each year has been approximately one half of the full allocation. Between 2010 and 2020, SWSD received an average of 74,682 AFY of Table A water and 9,194 of Article 21 water. Additionally, SWSD received an average of 3,042 AFY from Poso Creek, 43,619 AFY from water transfers, and 10,281 AFY from banking leave behind, for a combined average of 149,048 AFY between 2010 and 2020. DWR predicts the future average annual Table A allocation to average about 58 percent of contract amounts, which would yield an average supply of approximately 89,900 AFY for SWSD of Table A water.

Rosedale-Rio Bravo Water Storage District

RRBWSD was created in 1959 to offset groundwater overdraft in the Subbasin by diverting Kern River water into the Goose Lake Slough and adjacent recharge basins. RRBWSD delivers water to a select few landowners within Rosedale who have access to turnouts on the Goose Lake Slough, but primarily uses its water supplies to recharge the groundwater Subbasin. RRBWSD has a SWP Table A entitlement of 29,900 AFY. RRBWSD also owns contractual rights to 10,000 AFY of Kern River water, provided the water is used on property within Rosedale (Appendix I.2).

Shafter-Wasco Irrigation District 7th Standard Annex

SWID was created in 1937 to replenish dwindling groundwater supplies. In 2019, SWID annexed in approximately 10,000 acres of previously un-districted lands located to its south. The purpose of the annexation was to provide SGMA coverage and a vehicle to collect funds from 7th Standard Annex landowners to develop a groundwater sustainability plan (GSP) and implement projects and management actions necessary to achieve sustainability. The water supplies of SWID are not shared with the 7th Standard Annex area, which is almost entirely reliant on groundwater.

Buena Vista Water Storage District

BVWSD was created in 1924 to manage the water rights and irrigation/drainage systems originally held by the Lux Land Company. BVWSD has a SWP Table A entitlement of approximately 21,300 AFY. BVWSD also has an entitlement of approximately 150,000 AFY of Kern River water.

Buttonwillow County Water District

BCWD is one of several small water systems in the vicinity of the proposed Project, but the only one whose service area intersects the Project site boundary. BCWD (Water System No. CA1510011) is a community water system that supplies 41 commercial service connections, 374 residential service connections, and a population of 1,508 people. The BCWD water system consists of four groundwater supply wells that pump from the Subbasin (SWRCB 2023).

Groundwater

Hydrogeologic Setting

The proposed Project overlies the San Joaquin Valley Groundwater Basin – Kern County Subbasin. The Subbasin covers approximately 1.8 million acres or 2,785 square miles. The Subbasin is bounded by the Temblor Range on the west; the Sierra Nevada Mountains on the east; the Tulare Lake and Tule groundwater subbasins on the north; and the San Emigdio Mountains, Tejon Hills, and the White Wolf groundwater subbasin on the south. The Subbasin receives an annual average of five inches of precipitation at the Subbasin interior, and nine to 13 inches of precipitation along the Subbasin margins. Groundwater flow in the Subbasin is restricted vertically by Corcoran Clay, along with other restricting structures, separating the upper unconfined aquifer from the lower confined aquifer.

Groundwater Management

The Project site is located in an area managed by two groundwater sustainability agencies (GSAs) and GSPs, including the Kern Groundwater Authority (KGA) GSP and the BVWSD GSP, although the majority of the Project site is covered by the KGA GSP. The KGA, through a joint powers agreement, represents 12 member agencies in the Subbasin, including SWSD and RRBWSD. Although SWSD coordinates with KGA for SGMA purposes, the KGA GSP can act as a standalone GSP governing its management area (SWSD 2019). BVWSD is an independent groundwater GSA and as such prepared its own GSP. The BVWSD GSP was developed in coordination with the KGA GSP and the two are in reasonable agreement in terms of the sustainable management criteria and projects and management actions that will be implemented in order to achieve basin sustainability (BVWSD 2020; KGA 2022).

DWR identifies the Kern County Groundwater Subbasin as a high-priority, critically over-drafted basin. The Subbasin has 20 GSAs that have developed seven GSPs to achieve basin sustainability. Sustainable yield is defined as the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, which can be withdrawn annually from a groundwater supply without causing an undesirable result. Based on current groundwater modeling results, the sustainable yield of the Subbasin is approximately 1,313,000 AFY. This equates to an annual sustainable yield on an acre-feet per-acre basis of approximately 0.73 AF/acre for the 1.8 million-acre Subbasin. Historical average annual pumping in the Kern County Groundwater Subbasin exceeded the sustainable yield and totaled an estimated 1,590,373 AFY. This resulted in overdraft of the Subbasin and a decline in storage of approximately 277,114 AFY (KGA 2022). In response, the GSAs developed more than 150 projects and

management actions designed to reduce groundwater pumping and help achieve basin sustainability, such as tiered pricing for groundwater pumping, land fallowing, and enhanced groundwater recharge (KGA 2022). Although the proposed Project would use an estimated 1,000 AFY for construction and 7 AFY for operation and maintenance (O&M), conversion of the Project site to a use requiring less water (from agriculture to solar electric) is supportive of the KGA's GSP long-term sustainability goal.

Groundwater Level

Groundwater levels fluctuate based on climatic conditions and the availability of imported water. Groundwater levels in the Subbasin generally decline during dry years and increase during wet years, although trends vary locally throughout the Subbasin (DWR 2006). Between 1970 and 2000, average groundwater levels in the Subbasin remained essentially unchanged. Since 2000, groundwater levels have steadily declined, reaching historical lows in recent years (SWSD 2019).

Groundwater Wells

The majority of groundwater production wells in the Project site source water from the confined aquifer below depths of approximately 300 to 400 feet below ground surface. There are 28 wells located within the Project site, with an average well yield of approximately 2,000 gallons per minute. Well logs indicate that the wells range in total depth from 600 to 878 feet below ground surface.

As discussed in the Regulatory Setting below, Senate Bill (SB) 610 was passed in 2002 and requires preparation of a WSA for a project that is subject to the California Environmental Quality Act (CEQA) and meets certain requirements. In compliance with SB 610, the WSA prepared for the proposed Project (Appendix I.2) examines the availability of the identified water supply under normal-year, single-dry-year, and multiple-dry-year conditions over a 20-year projection, accounting for the projected water demand of the proposed Project in addition to other existing and planned future uses of the identified water supply. Based on current groundwater modeling results, the sustainable yield of the Subbasin is approximately 1,313,000 AFY, which equates to an annual sustainable yield on an acre-feet per-acre basis of approximately 0.73 AF. This means that the proposed Project can sustainably pump up to 8,748 AF. Assuming that SWP water deliveries are evenly distributed across SWSD's 224,000 acre service area, the project site is anticipated to receive approximately 8,748 AF. The assumption of even distribution across SWSD's service area is not entirely accurate because actual water deliveries vary by parcel. The use of the assumption allows for a rough order of magnitude estimate of current and future SWP water deliveries to the Project site. In total, the proposed Project site is projected to receive an average future supply of imported SWP Table A water of approximately 8,7484,809 AFY, and can sustainably pump up to approximately 8,748 AFY of groundwater, which results in a surplus of water under all required SB 610 water-year type scenarios when compared to the proposed Project demand.

Table 4.17-1: Water Demand in Normal, Single-Dry, and Multiple-Dry Years

Year	Project Year	Project Phase	Project Demand	Normal-Year Surplus	Single-Dry Year Surplus	Multiple-Dry Year Surplus
2025	0	Construction	1,000	12,557	10,650	8,163
2026	0	Construction	1,000	12,557	10,650	8,163
2027	0	Construction	1,000	12,557	10,650	8,163
2028	0	Construction	500	13,057	11,150	8,663
2038	10	O&M	7	13,550	11,643	9,156
2048	20	O&M	7	13,550	11,643	9,156
2058	35	O&M	7	13,550	11,643	9,156

Source: Dudek 2025

Notes:

All values are in acre-feet unless otherwise noted.

Construction is anticipated to occur over an up to 5-year period in phases and require up to 3,500 acre-feet total; however, construction is conservatively assumed to occur over a 3.5-year period with up to 1,000 acre-feet of water used per year.

Key: O&M = operations and maintenance.

Wastewater

The Kern Sanitation Authority provides maintenance and wastewater service for Kern County. As the majority of the Project site is currently utilized as agricultural land and includes residential development at rural densities, there is no sewer infrastructure in place. There may be up to eight onsite wastewater treatment (septic) systems within the proposed Project site.

Stormwater Drainage

As described in Section 4.10, *Hydrology and Water Quality*, of this EIR, the Project site is located in a remote, rural region with no existing or planned stormwater infrastructure. The Project site is relatively flat throughout, with elevations ranging from approximately 250 feet above mean sea level in the northwest to approximately 320 feet above mean sea level in the southeast. The primary drainage within the Project site is from ditches, most of which do not connect to other surface water bodies including those under regulatory jurisdiction of the Regional Water Quality Control Board (RWQCB). The only creek, stream, or river in the vicinity of the Project site is the Jerry Slough, an intermittent drainage that flows through the middle of the northern portion of the Project site. Other surface water features in the Project site consist of human-made conveyances and include the California Aqueduct, East Side Canal, Main Canal, and several other canals.

Solid Waste

Solid waste is a mixture of items discarded as useless or unwanted arising from residential, commercial, industrial, institutional, agricultural, mining, and other activities. These wastes include construction and demolition (C&D)-generated waste as well as inert wastes.

The Kern County Public Works Department Waste and Recycling Division provides environmentally safe management of solid waste and is responsible for operating seven landfills, five transfer stations, and three bin sites throughout the County.

In most cases, solid waste is hauled directly to Class III landfills, with the remainder being taken to transfer stations, resource recovery centers, or refuse-to-energy facilities. Class III landfills typically handle the disposal of non-hazardous waste. The wastes that the Kern County Public Works Department Waste and Recycling Division manage are:

- Non-hazardous solid waste that consists mostly of household garbage, commercial wastes, agricultural waste, and litter
- Special waste, or any waste that requires special handling, including infectious waste, pesticide containers, sewage sludge, oilfield waste, household hazardous waste, and asbestos waste
- Designated waste, or waste that consists of, or contains pollutants that could be released at concentrations in excess of, applicable water quality objectives and standards or hazardous waste that has been granted a variance from hazardous waste management requirements
- Hazardous waste, or waste that, because of its quantity, concentration, physical, chemical, or infectious characteristics, may either: (a) cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness, or (b) pose a substantial present or potential hazard to human health or the environment when improperly managed
- Industrial wastes, or hazardous and non-hazardous by-products from oil and gas extraction, pesticide, paper, petrochemical, rubber, plastics, electronics, and other industries

Not all of the above-defined wastes may be disposed at a landfill. State law regulates the disposal of wastes at landfills.

Kern County is responsible for compliance with the California Integrated Wastewater Management Act of 1989, Assembly Bill (AB) 939. Since January 1, 2000, AB 939 has required cities and counties to reduce the amount of solid waste being sent to landfills by 50 percent and prepare certain solid waste planning documents. These documents include the Source Reduction and Recycling Element, the Household Hazardous Waste Element, and the Non-Disposal Facility Element. All three of these documents have been approved for Kern County, as well as an Integrated Waste Management Plan approved in February 1998 by the California Integrated Waste Management Board. The Kern County Integrated Waste Management Plan is the long-range planning document for landfill facilities.

Landfills

The Kern County Public Works Department operates seven recycling and sanitary landfills throughout the County. Landfills are located in Bakersfield, Boron, Mojave-Rosamond, Ridgecrest, Shafter-Wasco, Taft, and Tehachapi (Kern County Public Works Department 2024). Limited solid waste is currently generated at the Project site. The proposed Project would likely be served primarily by the Shafter-Wasco Landfill, located at 17621 Scofield Avenue approximately 3.81

miles northeast of the Project site. This landfill accepts batteries, clean dirt, clean inerts (for example, source separated asphalt, brick, and concrete); C&D waste (for example, asphalt, brick, concrete, dirt, and metal), dead animals, electronic waste, green waste, ordinary household trash, tires, treated wood waste, and used motor oil (Kern County Public Works Department 2024). The design capacity of the Shafter-Wasco Landfill is 21,895,179 cubic yards, with a permitted maximum tonnage of 1,500 tons per day for 300 days per year and 2,250 tons per day for 15 days per quarter (CalRecycle 2021). The estimated closure year of the landfill is 2054.

Electric Power, Natural Gas, and Telecommunications

The Project site is located in an area where PG&E provides electric power and natural gas. The nearest existing PG&E substation to the proposed Project is the Midway Substation, located on State Route 58 at the southern end of the Project site (Site 1). The Midway Substation serves many high-voltage transmission lines of various voltages (115 kilovolt (kV), 230 kV, 500 kV), several of which traverse the Project site. Two gas pipeline are mapped crossing the Project site (National Pipeline Mapping System 2024), in Sites 6 and 8. Natural gas and petroleum wells have been drilled in the past at various locations across the Project site (Sites 1, 4, 6, 8). No wells are currently in service. Natural gas infrastructure crosses the Project site at Site 1, and additional lines may be discovered during construction. Telecommunication lines exist at the Project site, mainly along and inside the public road rights-of-way. These will not be impacted by the proposed Project.

4.17.3 Regulatory Setting

Federal

There are no federal regulations for this area.

State

Utilities

California Public Utilities Commission

The California Public Utilities Commission regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies, in addition to authorizing video franchises. It is tasked with ensuring safe, reliable utility service is available to consumers, setting retail energy rates, and protecting against fraud.

Water

California Department of Water Resources

DWR is responsible for protecting, conserving, developing, and managing much of California's water supply. These duties include preventing and responding to floods, droughts, and catastrophic events; informing and educating the public on water issues; developing scientific solutions;

restoring habitats; planning for future water needs, climate change impacts, and flood protection; constructing and maintaining facilities; generating power; ensuring public safety; and providing recreational opportunities.

State Water Resources Control Board and Regional Water Quality Control Board

The primary responsibility for the protection of water quality in California rests with the State Water Resources Control Board (SWRCB) and nine RWQCBs. The SWRCB sets statewide policy for the implementation of state and federal laws and regulations. The RWQCBs adopt and implement Water Quality Control Plans (Basin Plans), which recognize regional differences in natural water quality, actual and potential beneficial uses, and water quality problems associated with human activities. The main Project site is within the jurisdiction of the Central Valley RWQCB.

Integrated Regional Water Management

Integrated Regional Water Management (IRWM) is a collaborative effort to manage all aspects of water resources in a region and overseen by DWR. The State's IRWM program was developed beginning with SB 1672, which created the Integrated Regional Water Management Act to encourage local agencies to work cooperatively to manage local and imported water supplies to improve water quality, quantity, and reliability. Since then, California voters have approved more than $2 billion in bond funds to plan and implement over 1,450 integrated, multi-benefit regional projects across the state that foster climate resilience by mitigating drought impacts, improving water supply reliability, reducing flood and fire risk, increasing surface and groundwater storage, restoring and enhancing ecosystems, and improving water quality. The State recognizes that there is a need to consider a broader range of resource management issues, competing water demands, new approaches to ensuring water supply reliability, and new ways of financing. The IRWM authorizes a regional water management group to prepare and adopt an integrated regional water management plan (IRWMP) that addresses regional scale water supply and related matters.

The Project site falls within the Poso Creek IRWMP area. The Poso Creek Regional Water Management Group was formed in 2005 and is comprised of water districts, agencies, and other stakeholders in the region, including SWSD. The Poso Creek Regional Water Management Group prepared an IRWMP in 2007 and recently updated the IRWMP in 2019 (Poso Creek RWMG 2019). The Poso Creek IRWMP includes an assessment of the effects of climate change on regional water supplies and agricultural water demand (Poso Creek RWMG 2019). The assessment determined that "Water Supply" and "Water Demand" have the highest level of vulnerability to potential climate change impacts in the region. That is, the effects of climate change are expected to result in a decrease in average surface water deliveries via the California Aqueduct and are expected to increase evapotranspiration, which in turn will lead to an increase in agricultural water demand for irrigation. To prepare for these potential impacts of climate change on the region, the Poso Creek IRWMP establishes the following strategies (Poso Creek RWMG 2019):

- Expand in-lieu service areas in the Region, by expanding water conveyance to lands which are currently dependent solely on groundwater supplies (that is, reduce dependency on groundwater basin during "wetter" periods).

- Improve agricultural and urban water use efficiency.
- Expand groundwater recharge and banking efforts through expansion of spreading pond acreage to capture surplus wet-period water supplies and thereby help to maintain groundwater levels.
- Encourage changes in regional crop varieties that are more resistant to climate change. The regional water management group emphasizes these strategies not only in response to climate, but also to cope with significant surface water supply deficiencies that have already faced the Region.

Senate Bill 610 and 221

SB 610 and SB 221, passed in 2001, are companion measures that seek to promote more collaborative planning among local water suppliers and cities and counties. They require that WSA occur early in the land use planning process for all large-scale development projects. If groundwater is the proposed supply source, the required assessments must include detailed analyses of historic, current, and projected groundwater pumping and an evaluation of the sufficiency of the groundwater basin to sustain a new project's demands. They also require an identification of existing water entitlements, rights, and contracts and a quantification of the prior year's water deliveries. In addition, the supply and demand analysis must address water supplies during normal, single and multiple dry years, presented in five-year increments for a 20-year projection. In accordance with these measures, a WSA is required for a proposed industrial, manufacturing, or processing plant that would house more than 1,000 persons; occupy more than 40 acres of land; or have more than 650,000 square feet of floor area (CWC, Section 10912).

Sustainable Groundwater Management Act

In 2014, California enacted SGMA (Water Code Section 10720 et seq.). SGMA (as amended) requires that all groundwater basins designated as high- or medium-priority in the DWR California Statewide Groundwater Elevation Monitoring program, and that are subject to critical overdraft conditions, must be managed under a new GSP or a coordinated set of GSPs by January 31, 2020. High- and medium-priority basins that are not subject to critical overdraft conditions must be managed under a GSP by January 31, 2022. Where GSPs are required, one or more local GSAs must be formed to cover the basin and prepare and implement the applicable GSP(s). SGMA does not apply to basins that are managed under a court-approved adjudication, or to low- or very low-priority basins.

DWR identifies the Kern County Groundwater Subbasin as a high-priority, critically over-drafted basin. As such, the Subbasin has 14 GSAs that have developed six GSPs to achieve basin sustainability (KGA 2022). The Project site is located in an area managed by two GSAs and GSPs, including the KGA GSP and BVWSD GSP. The majority of the Project site is covered by the KGA GSP.

California Department of Water Resources California's Groundwater (Bulletin 118)

California's Groundwater (Bulletin 118) is the State's official publication on the occurrence and status of groundwater in California. The publication defines the groundwater basin boundaries and summarizes groundwater information for each of the State's 10 hydrologic regions. *California's Groundwater* features current knowledge of groundwater resources, including information on the location, characteristics, use, management status, and conditions of the State's groundwater. The publication also presents findings and recommendations that support the future management and protection of groundwater.

California Water Code

Section 10720

Section 10720 of the CWC establishes minimum standards for sustainable groundwater management, codified by SGMA, primarily to medium- and high-priority basins identified by DWR.

Section 10826

Section 10826 of the CWC outlines requirements for an AWMP that includes the following:

- Description of the agricultural water supplier and the service area, including all of the following:
  - Size of the service area.
  - Location of the service area and its water management facilities.
  - Terrain and soils.
  - Climate.
  - Operating rules and regulations.
  - Water delivery measurements or calculations.
  - Water rate schedules and billing.
  - Water shortage allocation policies.
- Description of the quantity and quality of water resources of the agricultural water supplier, including all of the following:
  - Surface water supply.
  - Groundwater supply.
  - Other water supplies, including recycled water.
  - Source water quality monitoring practices.
  - Water uses within the agricultural water supplier's service area, including all of the following:

  - Agricultural.
  - Environmental.
  - Recreational.
  - Municipal and industrial.
  - Groundwater recharge, including estimated flows from deep percolation from irrigation and seepage.

- An annual water budget based on the quantification of all inflow and outflow components for the service area of the agricultural water supplier. Components of inflow shall include surface inflow, groundwater pumping in the service area, and effective precipitation. Components of outflow shall include surface outflow, deep percolation, and evapotranspiration. An agricultural water supplier shall report the annual water budget on a water-year basis. The department shall provide tools and resources to assist agricultural water suppliers in developing and quantifying components necessary to develop a water budget.
- An analysis, based on available information, of the effect of climate change on future water supplies.
- A description of previous water management activities.
- Identification of water management objectives based on the water budget to improve water system efficiency or to meet other water management objectives. The agricultural water supplier shall identify, prioritize, and implement actions to reduce water loss, improve water system management, and meet other water management objectives identified in the plan.
- Information regarding efficient water management practices required pursuant to Section 10608.48.
- Quantification of the efficiency of agricultural water use within the service area of the agricultural water supplier using the appropriate method or methods from among the four water use efficiency quantification methods developed by the department in the May 8, 2012, report to the Legislature entitled "A Proposed Methodology for Quantifying the Efficiency of Agricultural Water Use." The agricultural water supplier shall account for all water uses, including crop water use, agronomic water use, environmental water use, and recoverable surface flows.

Section 10910

CWC Section 10910 outlines requirements for water supply assessments for certain development projects subject to CEQA. Section 10910(d) of the CWC requires that a WSA identify and describe the water supply source(s) that will serve the proposed Project. This includes the identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed Project, and a description of the quantities of water received in prior years if the source is a public water supplier, including agricultural water suppliers.

Section 13260

Section 13260 of the CWC requires any person who discharges waste, other than into a community sewer system, or proposes to discharge waste that could affect the quality of waters of the State to submit a report of waste discharge to the applicable RWQCB. Any actions of the proposed Project that would be applicable under CWC Section 13260 would be reported to the Central Valley RWQCB. However, the proposed Project is not expected to discharge waste into a water body and, therefore, is not required to provide a report of any discharge.

Solid Waste

California Department of Resources Recycling and Recovery

California Department of Resources Recycling and Recovery (CalRecycle) is the state agency designated to oversee, manage, and track California's 76 million tons of waste generated each year. It is one of the six agencies under the umbrella of the California Environmental Protection Agency. CalRecycle administers and provides oversight of California's State-managed non-hazardous waste handling and recycling program. CalRecycle provides training and ongoing support for local enforcement agencies that regulate and inspect California's active and closed solid waste landfills (CalRecycle 2024).

California Integrated Waste Management Act (Assembly Bill 939)

The Integrated Waste Management Act adopted in 1989 and as amended (Public Resources Code [PRC] 40050 et seq. or AB 939, codified in PRC 40000), administered by CalRecycle, requires all local and county governments to adopt a Source Reduction and Recycling Element to identify means of reducing the amount of solid waste sent to landfills. Pursuant to this law, since January 1, 2000, cities and counties have been required to divert at least 50 percent of their waste stream from landfills. To assist local jurisdictions in achieving this goal, the California Solid Waste Reuse and Recycling Access Act of 1991 requires all new developments to include adequate, accessible, and convenient areas for collecting and loading recyclable and green waste materials.

The 2022 California Green Building Code Section A5.408 requires at least 65 percent of the non-hazardous C&D waste generated at the nonresidential construction sites to be recycled or salvaged.

Senate Bill 1374 (Construction and Demolition Waste Materials Diversion)

SB 1374, Construction and Demolition Waste Materials Diversion Requirements, was adopted in 2002 and requires that jurisdictions summarize their progress realized in diverting C&D waste from the waste stream in their annual AB 939 reports. SB 1374 required the California Integrated Waste Management Board (CIWMB) to adopt a model C&D ordinance for voluntary implementation by local jurisdictions.

California Integrated Waste Management Board Model Ordinance

Subsequent to the Integrated Waste Management Act, additional legislation was passed to assist local jurisdictions in accomplishing the goals of AB 939. The California Solid Waste Reuse and Recycling Access Act of 1991 (PRC Sections 42900–42911) directs the CIWMB to draft a "model ordinance" relating to adequate areas for collecting and loading recyclable materials in development projects. The model ordinance requires that any new development project include "adequate, accessible, and convenient areas for collecting and loading recyclable materials."

California Solid Waste Reuse and Recycling Access Act of 1991 or Senate Bill 1327

The California Solid Waste Reuse and Recycling Access Act of 1991 (PRC Chapter 18) identified a lack of adequate areas for collecting and loading recyclable materials, resulting in a significant impediment to diverting solid waste. This act requires state and local agencies to address access to solid waste for source reduction, recycling, and composting activities. Each local agency must adopt an ordinance related to adequate areas for collecting and loading recyclable materials for development projects.

California Mandatory Commercial Recycling Law (Assembly Bill 341)

AB 341 directed CalRecycle to develop and adopt regulations to reduce greenhouse gas (GHG) emissions by diverting commercial solid waste through additional recycling services and recycling manufacturing facilities in California.

Since July 1, 2012, businesses have been required to recycle, and each jurisdiction has implemented programs that include education, outreach, and monitoring regarding recycling. Jurisdictions must report on their education, outreach, and monitoring efforts, and, if applicable, on any enforcement activities or exemptions that they implement.

In addition to Mandatory Commercial Recycling, AB 341 established a statewide goal of 75 percent disposal reduction by the year 2020. Given that the target that AB 341 established is a goal rather than a mandate, the 50 percent disposal reduction mandate of AB 939 (described above) still applies to cities, counties, and State agencies. CalRecycle continues to evaluate program implementation as it has in the past through the Annual Report review process for entities subject to AB 939.

California Short-lived Climate Pollutant Reduction Strategy (Senate Bill 1383)

SB 1383, *Short-lived Climate Pollutants (SLCP): Organic Waste Reductions*, was signed into law in September 2016 and intends to reduce harmful, short-lived pollutants with significant warming impacts and is essential to achieving California's climate goals. SB 1383 makes it mandatory for all businesses to recycle their organics weekly as well as requires businesses to divert their organics material from going to the landfill, which can include donating surplus food. Its statewide goal is to reduce the amount of organic waste disposed in landfills (50 percent reduction by 2020 and 75 percent reduction by 2025). It also aims to rescue at least 20 percent of food that would otherwise be disposed for human consumption, by 2025.

SB 1383 requires counties to take the lead collaborating with the jurisdictions located within the county in planning for the necessary organic waste recycling and food recovery capacity needed to divert organic waste from landfills into recycling activities and food recovery organizations. It requires organic waste facilities and operations to measure and report organic waste material activity, including composting and anaerobic digestion.

California Green Building Code

As part of compliance with the State of California Green Building Code Requirements (known as CALGreen) that took effect beginning January 2011, Kern County implemented the following construction waste diversion requirements:

- Submittal of a Construction Waste Management Plan prior to project construction for approval by the Kern County Building Department.
- Recycling and/or reuse of a minimum 50 percent of C&D waste; and
- Recycling or reuse of 100 percent of tree stumps, rocks, and associated vegetation and soils resulting from land clearing.

Since the passage of AB 939, diversion rates in California have been reduced to approximately 65 percent, the statewide recycling rate is approximately 50 percent, and the beverage container recycling rate is approximately 80 percent. In 2011, the State passed AB 341, which established a policy goal that a minimum of 75 percent of solid waste must be reduced, recycled, or composted by the year 2020. The State provided the following strategies to achieve that 75 percent goal:

1. Moving organics out of the landfill;
2. Expanding the recycling/manufacturing infrastructure;
3. Exploring new approaches for state and local funding of sustainable waste management programs;
4. Promoting state procurement of post-consumer recycled content products; and
5. Promoting extended producer responsibility.

To achieve these strategies, the State recommended legislative and regulatory changes including mandatory organics recycling, solid waste facility inspections, and revising packaging. With regard to C&D, the State recommended an expansion of California Green Building Code standards that incentivize green building practices and increase diversion of recoverable C&D materials. Current standards require 65 percent waste diversion on construction and some renovation projects. The State also recommends promotion of the recovery of C&D materials suitable for reuse, compost, or anaerobic digestion before residual wastes are considered for energy recovery.

Electric Power and Natural Gas

California Energy Commission

The California Energy Commission (CEC) is the state's primary energy policy and planning agency. Created in 1974, the CEC has five major responsibilities: forecasting future energy needs and keeping historical energy data, licensing thermal power plants 50 megawatts or larger, promoting energy efficiency through appliance and building standards, developing energy technologies and supporting renewable energy, and planning for, and directing, the State response to energy emergencies.

Energy California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24 Building Standards)

The CEC administers Title 24 Building Standards, which were first adopted in 1976 in response to a legislative mandate to reduce California's energy consumption. Standards are periodically updated to allow consideration and possible incorporation of new energy efficiency technologies and methods. California's building efficiency standards are updated on an approximately three-year cycle. On August 11, 2021, the CEC adopted the 2022 Energy Code. In December 2022, it was approved by the California Building Standards Commission for inclusion into the California Building Standards Code. The 2022 Energy Code encourages efficient electric heat pumps, establishes electric-ready requirements for new homes, expands solar photovoltaic (PV) and battery storage standards, strengthens ventilation standards, and more. Buildings that are the subject of permit applications submitted on or after January 1, 2023, must comply with the 2022 Energy Code.

Local

Water

The SGMA of 2014 effective January 1, 2015, authorizes local agencies to manage groundwater in a sustainable manner and allows limited state intervention when necessary to protect groundwater resources. SGMA requires the creation of a GSA for DWR-designated medium- and high-priority basins, which must develop and implement a GSP to manage and use groundwater in a manner that can be maintained during the planning and implementation horizon without undesirable results. Undesirable results include:

1) Chronic lowering of groundwater levels, indicating a significant and unreasonable depletion of supply;
2) Significant and unreasonable reduction of groundwater storage;
3) Significant and unreasonable seawater intrusion;
4) Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies;
5) Significant and unreasonable land subsidence that substantially interferes with surface land uses; and

6) Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

SGMA allows for multiple GSPs implemented by multiple GSAs and coordinated pursuant to a single coordination agreement that covers the entire basin to be an acceptable planning scenario (Water Code Section 10727). In the Subbasin, seven GSPs were prepared by 20 GSAs for the various management areas established in the Subbasin pursuant to a coordination agreement and submitted to the California DWR for review. Collectively, the seven GSPs and the Kern Subbasin Coordination Agreement are referred to as the "Plan for the Subbasin." Individually, the GSPs include the following:

- Kern Subbasin GSP–Amended July 2022, prepared by the Arvin GSA, Cawelo Water District GSA, Kern Non-Districted Land Authority GSA, Kern River GSA, Kern Water Bank GSA, Greenfield County Water Districts GSA, North Kern WSD GSA, Pioneer GSA, Rosedale-Rio Bravo WSD GSA, Shafter-Wasco ID GSA, Southern San Joaquin MUD GSA, Tejon-Castac Water District GSA, West Kern Water District GSA, Wheeler Ridg-Maricopa GSA
- Buena Vista GSA GSP, July 2022, prepared by the Buena Vista Water Storage District GSA
- Kern-Tulare Water District GSA GSP, September 2024, prepared by the Kern-Tulare Water District GSA
- Olcese GSA GSP, July 2022, prepared by the Olcese Water District GSA
- Semitropic Water Storage District GSA GSP, December 2024, prepared by Semitropic Water Storage District GSA GSP
- Henry Miller Water District GSP, July 2022, prepared by the Henry Miller Water District GSA
- Westside District Water Authority GSA GSP, 2025, prepared by the Westside District Water Authority GSA GSP

On March 2, 2023, the DWR determined that the Kern County Subbasin's July 2022 GSPs were inadequate for the following deficiencies:

- Deficiency 1 involved how the Plan for the Subbasin established and justified undesirable results that represent effects caused by groundwater conditions occurring throughout the Subbasin.
- Deficiency 2 involved the establishment of minimum thresholds for the chronic lowering of groundwater levels.
- Deficiency 3 involved the establishment of sustainable management criteria for land subsidence.

However, the Kern County Subbasin GSAs incorporated revisions and submitted revised GSPs to the State Water Board for review on September 2, 2025. On September 17, 2025, the State Water Board: determined that the Kern County Subbasin GSAs substantially addressed the deficiencies; and directed DWR staff to review the revised GSPs regarding changes to be made to address the deficiencies and, if satisfactorily resolved, to transmit a letter to the DWR formalizing the return of the Kern County Subbasin to DWR.

Kern Integrated Regional Water Management Plan

The Kern Region published an IRWMP update in 2020. The 2020 Tulare Lake Basin Portion of Kern County IRWM Plan Update (2020 Plan Update) includes new information as required by the DWR 2016 Integrated Regional Water Management Proposition 1 Guidelines.

Solid Waste

Kern County Integrated Waste Management Plan

The Kern County Public Works Department is required by the State to plan and implement waste management activities and programs in the County unincorporated area to assure compliance with AB 939 (as amended) and subsequent State mandates. The Kern County Integrated Waste Management Plan includes a Reduction and Recycling Element, Household Hazardous Waste Element, and Non-Disposal Facility Element. The Plan was approved February 1998 by the CIWMB (now California Department of Resources Recycling and Recovery, or CalRecycle). The Kern County Integrated Waste Management Plan is the long-range planning document for landfill facilities.

Kern County and Incorporated Cities Hazardous Waste Management Plan

In 1991, Kern County and the incorporated cities adopted the Kern County and Incorporated Cities Hazardous Waste Management Plan to comply with State Law (California Health and Safety Code Section 25135 et seq.). The Hazardous Waste Management Plan includes goals, policies, and implementation measures regarding the safe and responsible management of hazardous waste, including waste stream management, source reduction, siting of new facilities, and other provisions. The safe management of hazardous waste is to be accomplished in accordance with federal, state, and local laws.

Kern County Construction Waste Diversion Requirements per the California Green Building Code

As part of compliance with the State of California Green Building Code Requirements (known as CALGreen) that took effect beginning January 2011, Kern County implemented the following construction waste diversion requirements:

- Submittal of a Construction Waste Management Plan prior to project construction for approval by the Kern County Building Department;
- Recycling and/or reuse of a minimum 65 percent of C&D waste; and

- Recycling or reuse of 100 percent of tree stumps, rocks, and associated vegetation and soils resulting from land clearing.

Kern County Public Works Department Recycling Programs

The Waste Operations Division of the Kern County Public Works Department administers or sponsors the following recycling programs, which contribute toward meeting State-mandated solid waste diversion goals to achieve 75 percent recycling, composting, or source reduction of solid waste by 2020:

- Recycling programs at landfills to recycle or divert a wide variety of products, such as wood waste, cathode ray tubes, tires, inert materials, appliances, etc.
- Drop-off recycling centers for household recyclables. The County- and the city-operated drop-off recycling centers, which are located in the unincorporated metropolitan area and the city, may be used by both County and city residents
- Financial assistance for operation of the City of Bakersfield Green Waste Facility
- The Kern County Special Waste Facility for the disposal of household hazardous waste. Services are provided to all Kern County residents
- Semi-annual "bulky waste" collection events, which are held in the Bakersfield area and available to both County and city residents (co-sponsor)
- Christmas tree recycling campaign (participates jointly with the City of Bakersfield)
- Telephone book recycling program (co-sponsors with Community Clean Sweep)
- Community Clean Sweep summer workshops called "Trash to Treasure," which educate children about recycling and other Kern County Waste Management Department programs (sponsor)
- An innovative elementary school program called the "Clean Kids Hit the Road Puppet Show" (operates in collaboration with Community Clean Sweep)
- Recycling trailers for churches, schools, and nonprofit organizations

Kern County General Plan

The Project site is located within the Kern County General Plan (KCGP) area and, therefore, the proposed Project is subject to applicable policies and measures of the KCGP. The Land Use, Conservation, and Open Space Element and the Energy Element of the KCGP includes goals, policies, and implementation measures related to utilities and service systems that apply to the proposed Project, as described below.

Chapter 1. Land Use, Conservation, and Open Space Element

1.4. Public Facilities and Services

Goals

Goal 1. Kern County residents and businesses should receive adequate and cost-effective public services and facilities. The County will compare new urban development proposals and land use changes to the required public services and facilities needed for the project.

Goal 5. Ensure that adequate supplies of quality (appropriate for intended use) water are available to residential, industrial, and agricultural users within Kern County.

Goal 9. Serve the needs of industries and Kern County residents in a manner that does not degrade the water supply and the environment and protect the public health and safety by avoiding surface and subsurface nuisances resulting from the disposal of hazardous wastes, irrespective of the geographic origin of the waste.

Policy 1. New discretionary development will be required to pay its proportional share of the local costs of infrastructure improvements required to service such development.

Policy 3. Individual projects will provide availability of public utility service as per approved guidelines of the serving utility.

Policy 15. Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the CEQA documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.

Implementation Measures

Implementation Measure C. Project developers shall coordinate with the local utility service providers to supply adequate public utility services.

Implementation Measure D. Involve utility providers in the land use and zoning review process.

Implementation Measure L. Prior to the approval of development projects, the County shall determine the need for fire protection services. New development in the County shall not be approved unless adequate fire protection facilities and resources can be provided.

Implementation Measure N. Secure complete and accurate information on all hazardous wastes generated, handled, stored, treated, transported, and disposed of within or through Kern County.

Implementation Measure O. Reduce to the greatest degree possible the amount of waste to be disposed of by encouraging private industry to construct and manage a high-quality system of transfer stations, recycling facilities, treatment plants, and incinerators located near the generators of hazardous waste.

Implementation Measure R. Roads and highways utilized for commercial shipping of hazardous waste destined for disposal will be designated as such pursuant to Vehicle Code Sections 31303 et seq. Permit applications shall identify commercial shipping routes they propose to utilize for particular waste streams.

1.8 Industrial

Policies

Policy 1. Locations for new industrial activities shall be provided with adequate infrastructure (water, sewage disposal systems, roads, drainage, etc.) to minimize effects on County services.

1.10 General Provisions

1.10.1 Public Services and Facilities

Policies

Policy 9. New development should pay its pro rata share of the local cost of expansions in services, facilities, and infrastructure which it generates and upon which it is dependent.

Policy 15. Prior to approval of any discretionary permit, the County shall make the finding, based on information provided by the CEQA documents, staff analysis, and the applicant, that adequate public or private services and resources are available to serve the proposed development.

Policy 16. The developer shall assume full responsibility for costs incurred in service extension or improvements that are required to serve the project. Cost sharing or other forms of recovery shall be available when the service extensions or improvements have a specific quantifiable regional significance.

Implementation Measures

Implementation Measure C. Project developers shall coordinate with the local utility service providers to supply adequate public utility services.

Implementation Measure D. Involve utility providers in the land use and zoning review process.

Implementation Measure E. All new discretionary development projects shall be subject to the Standards for Sewage, Water Supply and Preservation of Environmental Health Rules and Regulations administered by the County's Public Health Services Department. Those projects having percolation rates of less than five minutes per inch shall provide a preliminary soils study and site specific documentation that characterize the quality of upper groundwater in the alternative septic systems would adversely impact groundwater quality. If the evaluation indicated that the uppermost groundwater at the proposed site already exceeds groundwater quality objectives of the RWQCBs or would if the alternative septic system is installed, the applicant would be required to supply sewage collection, treatment, and disposal facilities.

Chapter 5. Energy Element

5.4.5 Solar Energy Development

Goal

Goal 1. Encourage safe and orderly commercial solar development.

Policies

Policy 1. The County shall encourage domestic and commercial solar energy uses to conserve fossil fuels and improve air quality.

Policy 3. The County should permit solar energy development in the desert and valley planning regions that does not pose significant environmental or public health and safety hazards.

Policy 4. The County shall encourage solar development in the desert and valley regions previously disturbed, and discourage the development of energy projects on undisturbed land supporting state or federally protected plant and wildlife species.

4.17.4 Impacts and Mitigation Measures

Methodology

Potential impacts to utilities and service systems associated with construction and operation of the proposed Project have been evaluated using a variety of resources, including multiple online sources and published documents, as well as the Project-specific WSA (Dudek 2025) and the Preliminary Hydrology Study (Westwood 2025). In addition, current data obtained from the County and State of California about the capacity of landfills was used to identify potential impacts. Using these resources and professional judgment, impacts were analyzed according to significance criteria established in Appendix G of the *CEQA Guidelines*, described below.

The WSA assumes a conservative 3.5-year construction period at 1,000 AFY at peak construction and 3,500 AF total for construction. Based on the Will-Serve Letter by SWSD, the Project applicant will be provided up to 3,500 AF, for construction of the proposed Project, provided conditions of the agreement are met, as proposed initially by the Project applicant. The duration of the construction phase is anticipated to last five years, with the greatest amount of water estimated to last for approximately 3.5 years. A 1,000 AFY consumption rate was assumed for additional years. The WSA utilizes criteria in the CWC, as amended in 2002 by the passage of SB 610. In compliance with SB 610, the WSA examines the availability of the identified water supply under normal-year, single-dry-year, and multiple-dry-year conditions over a 20-year projection, accounting for the projected water demand of the proposed Project in addition to other existing and planned future uses of the identified water supply. The discussion below lists specific impacts and measures that would be incorporated to mitigate and reduce potential impacts, to the extent feasible.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the *CEQA Guidelines*, to determine if a project could potentially have a significant adverse effect on utilities and service systems.

A project could have a significant adverse effect on utilities and service systems if it would:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;
- Have insufficient water supplies are available to serve the proposed Project and reasonably foreseeable future development during normal, dry, and multiple dry years;
- Result in a determination by the wastewater treatment provider which serves or may serve the proposed Project that it has inadequate capacity to serve the proposed Project's estimated demand in addition to the provider's existing commitments;
- Generate solid waste exceeding state or local standards or the capacity of local infrastructure, or otherwise would impair the attainment of solid waste reduction goals; and/or
- Not comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Project Impacts

Impact 4.17-1: Would the Project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Construction

Water

The construction period for the proposed Project from site preparation through construction, testing, and commercial operation is expected to extend for approximately 30 to 60 months. However, the greatest amount of water use for construction would occur over a 3.5-year period. Water for construction would be either pumped or trucked and stored on-site in temporary, portable water tanks to be primarily used for dust suppression, soil compaction, concrete hydration, and other miscellaneous activities requiring non-potable water during construction. Potable water for drinking and similar needs during construction would be provided from off-site sources (for example, bottled water). Total water usage during construction is not expected to exceed 1,000 AFY, and would be dedicated primarily for dust suppression, soil compaction, concrete hydration purposes, etc. Water supply for a conservative 3.5-year construction phase requires a

total of 3,500 AF (maximum 1,000 AFY), which would be provided by SWSD, per the Will-Serve Letter in Appendix I.2. The water would be delivered at district turnouts on the Project site via SWSD's existing water infrastructure network. Additional water may be sourced from private wells or provided by the other water districts for portions of the proposed Project within their service areas. The water would be delivered at existing wells and district turnouts. As noted in **Table 4.17-1:** *Water Demand in Normal, Single-Dry, and Multiple-Dry Years*, the Project site currently uses approximately 17,159 AFY for crop production. Based on the analysis above, there is substantial evidence to indicate that it is likely there would be sufficient water for the 35-year life of the proposed Project, even during multiple dry years. The proposed Project would require a maximum of 1,000 AFY at peak construction and up to 7 AFY for 35 years for O&M of the proposed facilities. The total proposed construction Project water demand is an estimated 3,500 AF. This is a significant reduction from the historical land use water demand for agriculture, which required an estimated 17,159 AFY for crops. Assuming a 35-year operational phase, water supply is available without the need for relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects.

Wastewater Treatment

Construction of the proposed Project would generate a minimal volume of wastewater. During construction activity, wastewater contained within portable toilet facilities and hand washing facilities would be disposed at an approved off-site disposal site. The Kern County Public Health Services Department Environmental Health Services Division is responsible for monitoring the use of portable toilet facilities, and the Project proponent would be required to provide documentation of a portable toilet pumping contract. Construction of a septic tank and leach field at each O&M building is proposed as part of the proposed Project and would be constructed and designed to meet guidelines required by Kern County laws, ordinances, regulations, and standards. Implementation of Mitigation Measure MM 4.17-1 would require the Project proponent to obtain the necessary approvals for the design of the septic system from the Kern County Engineering, ensuring that the system is designed to meet the County's standards.

Stormwater Drainage

As discussed in Section 4.10, *Hydrology and Water Quality*, of this Draft EIR, the Project site is located in a remote, rural region. The proposed Project would be required to adhere to Kern County Public Works Department storm water requirements, which include measures to address stormwater controls on both management of runoff volume and water quality, including controlling erosion and protection of water quality of stormwater runoff.

As previously described, the Project site is relatively flat and stormwater drainage within the proposed Project consists primarily of natural drainages and irrigation ditches used for conveying water to orchards and agricultural fields, most of which do not connect to other surface water bodies including those under regulatory jurisdiction of the Central Valley RWQCB. There are several

privately owned and localized detention features that evaporate or percolate into the ground for recharge.

Various areas of the site would be graded and/or compacted to prepare a smooth surface for inverter and battery energy storage system (BESS)-foundation placement and laydown storage yards, and would be minimal due to the existing flat landform. Site preparation, laydown areas, and internal circulation roads within the Project site would result in a slight increase in imperviousness of the on-site soils that would temporarily increase the compaction of existing soils. Given the relatively flat topography, water used during construction would be contained on the Project site. During construction, removal of vegetation and temporary increase in impervious areas expose soils to precipitation and surface runoff and can accelerate surface soil erosion and can alter stormwater drainage patterns. Altered stormwater drainage from construction could lead to new stormwater drainage features, which is considered potentially significant.

Because construction of the proposed Project would disturb more than one acre of surface area, the applicant would be required to obtain coverage under SWRCB Construction General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (2012-0006-DWQ). As a standard requirement for enrolling under this permit, the Project proponent would be required to prepare a Storm Water Pollution Prevention Plan (SWPPP) that details project information, monitoring and reporting procedures, and best management practices (BMPs) (for example, dewatering procedures, storm water runoff quality control measures, and concrete waste management) as necessary for the proposed Project, as provided by Mitigation Measure MM 4.10-1 (Section 4.10, *Hydrology and Water Quality*). The SWPPP would be designed based on final engineering plans and would require approval from the County prior to proposed Project implementation. The Applicant would submit a Notice of Intent to the State Board to initiate coverage under the Construction General Permit. Additionally, a hydrologic study and final drainage plan required by Mitigation Measure MM 4.10-2 would detail any necessary design features required to properly control stormwater runoff, both on-site and off-site, as described in Section 4.10, *Hydrology and Water Quality*.

Construction of the proposed Project would not exceed the capacity of existing storm water drainage systems in the area. Stormwater management facilities would be included during construction, and the Project proponent would be required to submit a SWPPP prior to construction. Therefore, construction of the proposed Project is not anticipated to result in the relocation or construction of new or expanded stormwater drainage facilities, the construction or relocation of which could cause significant environmental effects.

Electric Power

Electricity is not expected to be consumed in large quantities during Project construction. Construction equipment and vehicles are not anticipated to be electric, rather, diesel- or gasoline-powered and, consequently, would not require the provision of electric power. The temporary office and construction facilities would obtain electricity from a temporary drop offline from the local electrical distribution system. Up to 10 portable electrical generators that meet local and State emission controls would be used throughout the proposed Project during construction for electrical

needs away from the temporary construction facilities. Temporary electric power for as-necessary lighting and electronic equipment, such as computers inside temporary construction trailers, would be provided by PG&E via the proposed Project's distribution line or by generators. Any electricity used for such activities would be temporary and substantially less than that required for Project operation. Therefore, as construction of the proposed Project would tie into existing off-site facilities and would not require or result in the relocation or construction of permanent electric power facilities, the construction or relocation of which could cause significant environmental effects.

Natural Gas

The proposed Project would not use natural gas during the construction phase. Therefore, construction of the proposed Project would not require or result in the relocation or construction of new or expanded natural gas facilities, the construction or relocation of which could cause significant environmental effects. Construction activities would not result in impacts regarding natural gas facilities.

Telecommunications

The proposed Project may require redundant telecommunication connections. If so, the primary telecommunication line would consist of fiber-optic cable and/or copper telecommunication line installed above and/or below ground and attached to either existing utility lines located outside of the Up to six microwave/communication towers are proposed in six locations within the proposed Project. site or within the new gen-tie. One microwave/communication tower would be located with a substation in up to six location options. As discussed in Section 4.2, *Agricultural and Forest Resources*, the installation of telecommunications infrastructure for the proposed Project would result in the removal of land from agricultural production, contributing to significant and unavoidable impacts to agricultural resources. Construction impacts are temporary and would cease after installation is complete. Any work that may affect services to the existing telecommunications lines would be coordinated with service providers. Therefore, construction of the telecommunication connections would not require or result in the relocation or construction of new or expanded telecommunication facilities, the construction or relocation of which could cause significant environmental effects. Construction activities would not result in impacts regarding telecommunications facilities.

Operation

Water

The proposed Project would require up to 7 AFY of water over the course of 35 years for O&M, for a total of approximately 245 AF. During operations, water would be used for panel washing, fire suppression, and O&M domestic use (for example, lavatories, landscape irrigation, and drinking). SWSD has agreed to supply water for the proposed Project. The water would be delivered at district turnouts on the Project site via SWSD's existing water infrastructure network. Additional water may be obtained from alternative water districts, new or existing on-site wells, or one or more off-site source(s) and delivered to the Project site via truck.

Plastic or steel above-ground water storage tanks would be placed on-site near the O&M building(s). The storage tank(s) near the O&M building(s) would be sized in accordance with Kern County and fire department requirements and have the appropriate fire department connections to be used for fire suppression purposes. These water supplies are available without the need for relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects. Impacts would be less than significant.

As noted in **Table 4.17-1:** *Water Demand in Normal, Single-Dry, Multiple-Dry Years*, the Project site currently uses approximately 17,159 AFY for crop production. The total proposed Project water demand for construction and operations combined is an estimated 3,745 AF, or approximately 97 AFY when amortized over the entire life of the proposed Project from the start of construction to end of operation (Appendix I.2). This represents a 99 percent reduction in the Project site water demand from the historical land use water demand for agriculture, which required an estimated 17,159 AFY for crops.

Based on SWSD water allocation from SWP by acreage, the proposed Project site is projected to receive an average future supply of SWP Table A water of approximately 4,809 AFY and can sustainably pump up to approximately 8,748 AFY of groundwater. However, SWSD has conditionally agreed to provide up to 7 AF, per Appendix I.2 of this Draft EIR. Even with this reduction on imported water, this results in a surplus of water under all required SB 610 water-year type scenarios when compared to the proposed Project demand. The amount of water available is thus sufficient to meet the projected demand for the operation of the proposed Project, and SWSD has agreed to supply water for the proposed Project as an agricultural water supplier. Therefore, operation of the proposed Project would not require or result in the relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects.

Wastewater

Wastewater would be generated through facilities inside of the O&M buildings. The proposed Project includes six locations for up to four O&M building(s) less than 3,600 square feet in size, with associated on-site parking. A single standard on-site septic tank and leach field would be used at each of the O&M building(s) to dispose of sanitary wastewater from sinks and lavatories, designed to meet O&M guidelines required by Kern County laws, ordinances, regulations, and standards. Each septic system and leach field would be sized for the up to 20 full-time employees who would work on-site. The septic systems would be constructed in accordance with Kern County Department of Public Health requirements which would minimize the potential for failure (Kern County Public Health 2025). Operation of the proposed facilities would not require connection to existing wastewater utility infrastructure. Therefore, the proposed Project would not require or result in the relocation or construction of new or expanded wastewater treatment facilities, the construction or relocation of which could cause significant environmental effects.

Stormwater Drainage

The Project site is in an area with no existing or planned stormwater infrastructure. There are no existing stormwater drainage systems on the Project site, and no stormwater drainage systems are proposed as part of the proposed Project. The Project site is relatively flat and would require only minimal grading to allow for installation of the key project components. Minimal grading is expected for the combined area for the inverter pad, substation, driveways, tracker installation, and other improvements. However, installation of the proposed facilities discussed in Chapter 3, *Project Description*, of this Draft EIR, specifically the panels, could alter existing on-site drainage patterns and flowpaths due to their impermeability, which is considered potentially significant. The introduction of panels on permeable soils have the potential to alter the flow, creating new drainage patterns and runoff, potentially causing a need for new drainage facilities. However, the proposed Project would be required to adhere to Kern County Public Works Department stormwater requirements, which include measures to manage runoff volume and water quality, including controlling erosion and protection of water quality during storm events. In addition, the proposed Project would comply with Mitigation Measure MM 4.10-1, which would implement a SWPPP for the solar field. As previously described, stormwater drainage within the proposed Project consists primarily of natural drainages and irrigation ditches used for conveying water to orchards and agricultural fields, most of which do not connect to other surface water bodies including those under regulatory jurisdiction of the Central Valley RWQCB. There are no existing stormwater drainage systems on the Project site, and no stormwater drainage systems are proposed as part of the proposed Project. Thus, the proposed Project would not exceed the capacity of existing storm water drainage systems in the area. Therefore, operation of the proposed Project would not result in the relocation or construction of new or expanded stormwater drainage facilities, the construction or relocation of which could cause significant environmental effects.

Electric Power

The PV solar facility and associated infrastructure would enable the generation of up to 2 gigawatts (GW) of renewable electrical energy and the storage of approximately 2 GW of energy in the proposed BESS. As described in Chapter 3, *Project Description*, either electricity produced from the proposed facilities or a local power provider would provide auxiliary power. The proposed Project would require power for the O&M facilities, electrical enclosures, tracker motors, associated structures, and for lighting and security. A 12-kV distribution line would be constructed to provide permanent power to the on-site O&M buildings and back-up power to the on-site electrical substation(s). The 12-kV distribution line would be installed as an overhead or underground line. If installed as an overhead line, the 12-kV distribution line would include new wood poles. The 12-kV distribution line would extend from the existing PG&E distribution system nearest the site. The 12-kV distribution line is anticipated to be installed by PG&E. The alignment of the 12-kV distribution line and point of interconnection with the on-site O&M buildings and electrical substation(s) is pending PG&E's design and approval.

As described in Section 4.6, *Energy*, the total project electricity demand is 88,451,524 kilowatt hours (kWh) per year. For the 2021 fiscal year, PG&E had an annual electric sale to customers of approximately 78,587,869 megawatt-hours. The proposed Project's electricity demand represents approximately 0.1 percent of the PG&E network sales for 2020. According to the Air Quality,

GHG, and Energy Technical Report prepared for the proposed Project by Dudek (Appendix C.2), the proposed Project is estimated to produce 3,390,332,060 kWh per year of renewable energy from the 2-gigawatt solar system, which more than offsets the energy consumed annually to operate the proposed Project. Therefore, operation of the proposed Project would not require or result in the relocation or construction of new or expanded electric power facilities, the construction or relocation of which could cause significant environmental effects.

Natural Gas

The proposed Project will not use natural gas during the operational phase and, therefore, would not require or result in the relocation or construction of new or expanded natural gas facilities, the construction or relocation of which could cause significant environmental effects. Thus, there would be no impact from the proposed Project.

Telecommunications

As previously described, the proposed Project may require redundant telecommunication connections. The primary telecommunication line would consist of fiber-optic cable and/or copper telecommunication line installed above and/or below ground and attached to either existing utility lines located outside of the Project site or within the new gen-tie. Below ground installations would be installed 24 to 48 inches below grade. Above-ground lines would be placed below existing distribution lines or on new, adjacent wooden poles.

Up to six microwave/communication towers are proposed in six locations within the proposed Project. Each microwave/communication tower consists of up to three 6-foot-high performance microwave dish(es) fixed to a steel monopole of up to 130 feet in height. An approximately 12-feet by 20-feet equipment shelter may also be included within a fenced area. The shelter would have a maximum height of 10 feet. The proposed radio equipment would be within the equipment shelter and connected to the microwave dish(es) via coaxial or fiber-optic cables. If the microwave tower is located outside the selected substation footprint, fencing would consist of an up to 6-feet-high chain-link fence with up to three strands of barbed wire (up to 2 feet high), for a total maximum height of eight feet.

Telecommunications facilities would be constructed in compliance with all relevant requirements and would be maintained throughout the lifetime of the main proposed Project. Telecommunication demands for the operational phase of the proposed Project are not expected to result in additional demand such that the construction of off-site facilities would be required. Therefore, operation of the proposed Project would not require or result in the relocation or construction of new or expanded telecommunication facilities, the construction or relocation of which could cause significant environmental effects.

PG&E Midway (Midway) Substation Upgrades

The proposed Project includes enlarging the Midway Substation's 500-kilovolt (kV) yard within the PG&E-owned Midway Substation property boundaries. The Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities as part of the proposed Project. PG&E may install two four-inch fiber-optic

line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest of the Midway Substation property. Other activities include: installing up to nine, 67.5 cubic feet underground substructure vaults along the conduit trenches; removing an existing precast security wall at the northwest side of the Midway Substation and replacing it with a new 12-foot wall; grading of the connection area; installing approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker; equipment foundations and concrete trenches; equipment cabinets; bus structures; communication lines; conduits; pull boxes; and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the Point of Change of Ownership for the proposed Project. Up to four approximately 175-foot-tall lattice steel towers or tubular steel poles would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads. For a detailed description of the Midway Substation upgrades, see Section 3.0, *Project Description.*

Water

The construction activities would require water uses for activities such as dust suppression, soil compaction, concrete hydration purposes, etc. PG&E estimates that up to four (4) six-person crews working approximately 10-hour days, six days per week would construct the Midway Substation upgrades. As stated above, total water usage during construction including, but not limited to, construction of the Midway Substation upgrades, is expected to involve 1,000 AFY or less, or a maximum of 3,500 AF for the entire 3.5-year construction period. As stated in its Will-Serve Letter in Appendix I.2, SWSD has supplies available to provide water for the construction activities. Operation of the Midway Substation after installing the upgrades would require a negligible amount of water.

Wastewater Treatment

As discussed above, during construction activities a commercial operator would provide portable restrooms and dispose of wastewater at a wastewater treatment facility that it either operates or with which it has contracts, and which has capacity to receive the wastewater for disposal and treatment.

Similar to other O&M buildings within the Project site, the Midway Substation Upgrades may include the construction of an O&M building with restroom facilities requiring installation and maintenance of a septic tank and leach field. Pursuant to Mitigation Measure MM 4.17-1, the septic tank and leach field would require design approval by the Kern County Engineering, Surveying and Permit Services Department.

Stormwater Drainage

Similar to other parcels within the Project site, the Midway Substation site is relatively flat. Construction activities would adhere to Kern County Public Works Department storm water requirements. Additionally, the Project proponent would be required to prepare a SWPPP to ensure

construction would not require new or expanded stormwater drainage facilities. The upgrades to the Midway Substation do not include the installation of impervious surfaces capable of altering drainage and flowpaths.

Electric Power

As described in Section 4.6, *Energy*, construction of the Midway Substation upgrades would require a negligible amount of electricity and would not require or result in the relocation or construction of new or expanded electric power facilities, the construction or relocation of which could cause significant environmental effects. Further, as described above, the proposed Project would result in a net generation of approximately 3,301,880,536 kWh (3,301 GWh) of electricity per year; the Midway Substation upgrades are an important component to tying into the grid and providing this energy to PG&E customers. As stated above, for the 2021 fiscal year, PG&E had an annual electric sale to customers of approximately 77,886,999,998 kWh (77,887 GWh) (CEC 2024a). Environmental impacts associated with the installation of the facilities that would provide electric power for operation of the Midway Substation upgrades are evaluated in this Draft EIR. Where feasible, mitigation measures are provided to address significant impacts from the installation and use of the facilities.

Natural Gas

The Midway Substation upgrades will not use natural gas during the construction and/or operational phase and, therefore, would not require or result in the relocation or construction of new or expanded natural gas facilities, the construction or relocation of which could cause significant environmental effects. Thus, there would be no impact from the proposed Project.

Telecommunications

To support the proposed Buttonbush Solar and Storage Project's communication infrastructure, PG&E may install two (2) four-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest. This fiber-optic line is critical for the safe and efficient operation of the proposed Project. The fiber-optic line route will be trenched underground from the Midway Substation to the Point of Change of Ownership. It is anticipated that the first conduit path will exit the existing PG&E Midway Substation near the northwest corner of the fence corner, continue west for approximately 300 feet before turning north for approximately 1,400 feet, and then terminate at the Point of Change of Ownership. It is anticipated that the second conduit path will emerge from the substation out of the north fence approximately 160 feet from the northwest corner of the substation, route north for approximately 60 feet before heading west for approximately 500 feet, then turn north for approximately 1,400 feet, and then terminate at the proposed Project Point of Change of Ownership. Minor route modifications may be required at the time of construction due to unanticipated constraints. PG&E will install up to nine underground substructure vaults along the conduit trenches to support pulling the cable, housing excess cable storage, and supporting cable splice locations if required. The approximately 3-foot by 5-foot by 4.5-foot vaults will be installed along each conduit path between the Midway Substation and the Point of Change of Ownership. The

trench will be backfilled with a layer of fluidized thermal concrete (red in color) with another layer of a diggable low PSI fluidized thermal backfill.

Environmental impacts associated with the installation and maintenance of the Midway Substation communication facilities are evaluated in this Draft EIR. Where feasible, mitigation measures are provided to address significant impacts from the installation and use of the facilities (for example, mitigation measures are provided to minimize dust generation during ground disturbance and avoid any special status species which may be located in proximity to construction activities).

Summary

Implementation of Mitigation Measure MM 4.7-1 and Mitigation Measure MM 4.10-1 (see Section 4.10, *Hydrology and Water Quality*) would reduce significant impacts involving water and wastewater facilities. The proposed Project would not result in impacts involving natural gas-related infrastructure. However, as described in other sections of this Draft EIR, the installation, operation, and/or decommissioning of certain utilities would contribute to unavoidable, significant impacts regarding certain environmental topics and resources (for example, cumulative air quality impacts due to construction-generated emissions and cumulative impacts involving special status species).

Mitigation Measures

Implement Mitigation Measure MM 4.10-1, as described in Section 4.10, *Hydrology and Water Quality*, and the following.

MM 4.17-1: Prior to the issuance of a building permit for an O&M building that includes facilities the use of which will generate wastewater requiring sanitary disposal (e.g., restrooms), the method of sewage disposal shall be as required and approved by the Kern County Public Health Services Department. Compliance with this requirement will necessitate that the project proponent obtain the necessary approvals for the design of the septic system from the Kern County Engineering, Surveying and Permit Services Department. The septic system disposal field shall be located a minimum of 100 feet from a classified stream, or 25 feet from a non-classified as defined in the Kern County Onsite Systems Manual (Kern County 2016), and shall not be located where it would impact State wetlands or special-status plant species.

Level of Significance After Mitigation

Less than significant.

Impact 4.17-2: Would the Project have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Water requirements for the proposed Project during construction and operation were determined in the WSA prepared for the proposed Project (Appendix I.2 of this Draft EIR) and are summarized below.

Project Water Demand and Sustainable Yield

Existing Water Demand

Historical well pumping records were not available for preparation of this Draft EIR, because existing agricultural water use at the Project site is not metered. Therefore, existing demand was estimated using the crop evapotranspiration (ETc) method. Crop evapotranspiration is affected by many factors including irrigation method, soil type, percent land cover, and depth to groundwater. According to the reference evapotranspiration zones map of California, the Project site is located in evapotranspiration (ETo) Zone 15, with a total of 57.9 inches of ETo per year (Appendix WSA I.2). Crop coefficients were selected based on the crop types currently grown at the Project site. Based on the crop types, crop coefficients, and above assumptions, the Project site uses approximately 17,159 AFY for crop production. This equates to an existing per-acre consumptive use rate of approximately 1.43 AF/acre for the 11,983-acre Project site.

Project Water Demand

Table 4.17-1: *Water Demand in Normal, Single-Dry, and Multiple-Dry Years*, illustrates water availability projections under normal-year, single-dry-year, and multiple-dry-year conditions for the years 2025 through 2058, based on estimated SWP Table A allocations and the sustainable groundwater yield at the Project site.

Water supply availability was assessed from two primary sources, local groundwater from private wells on and within the vicinity of the Project site and water supplied by SWSD. Based on this analysis, there is substantial evidence to indicate that it is likely there will be sufficient water for the 35-year life of the proposed Project, even during multiple dry years. The proposed Project would require a maximum of 1,000 AFY at peak construction and 3,500 AF total for construction, and up to 7 AFY for 35 years for operation and maintenance of the proposed facilities. The total proposed Project water demand is an estimated 3,745 AF, or approximately 97 AFY when amortized over the life of the proposed Project. This equates to a per-acre consumptive use rate of approximately 0.008 AF/acre per year, which is a 99 percent reduction from the historical land use water demand for agriculture, which required an estimated 1.43 AF/acre or 17,159 AFY for crops. This is also significantly less than the Subbasin sustainable yield target consumptive use rate of approximately 0.73 AF/acre.

Water supply for the proposed Project would be provided by SWSD. The water would be delivered at district turnouts on the Project site via SWSD's existing water infrastructure network. Additional water may be sourced from private wells. The proposed Project obtained a Will-Serve letter from

SWSD (Appendix I.2). Per the Will-Serve letter, the proposed Project will be provided up to 3,500 AF for construction and 7 AFY for operation of the proposed Project, granted the conditions of the agreement are met. SWSD and SWID also provided letters of support for the proposed Project stating that the proposed Project would help reduce water demand of the region (Appendix I.2 and I.3). The proposed Project would require a maximum of 3,500 AF of water for construction over estimated 3.5 years (1,000 AFY at peak construction) and up to 7 AFY for 35 years for O&M. The total project water demand is an estimated 3,745 AF, or approximately 97 AFY. The water quantity required during decommissioning is unknown at present but is anticipated to be similar to construction water demands and, similar to construction, would be a temporary use.

As noted previously, the Project proponent would obtain water for construction from either existing wells or purchase water from a local provider. As discussed in the WSA, the Project site is projected to receive an average future supply of SWP Table A future supply of 4,809 AFY , which results in a surplus of water under all required SB 610 water-year type scenarios when compared to the proposed Project demand.

The following provides water availability projections under normal-year, single-dry-year, and multiple-dry-year conditions for the years 2025 through 2064 (5 years construction and 35-years O&M) based on estimated SWP Table A allocations and the sustainable groundwater yield at the Project site (**Table 4.17-2**). The sustainable yield is used as a conservative estimate of available groundwater supply. The calculations assume that in a normal year there will be 4,809 AF (58 percent allocation) of SWP Table A water available and 8,748 AF of sustainable groundwater supply available for a total of 13,557 AF of available water. In a single dry year, there will be 2,902 AF (35 percent allocation) of SWP Table A water available and 8,748 AF of groundwater supply available for a total of 11,650 AF of water. In a multiple-dry-year there will be 415 AF (5 percent allocation) of SWP Table A water available and 8,748 AF of groundwater supply available for a total of 9,163 AF of available water. Based on these conservative estimates of available water supply at the Project site, the available supplies are able to meet the short- and long-term demand for the proposed Project. Even in a multiple-dry-year during project construction, there will be an estimated surplus of 8,163 AF of water available at the Project site.

Table 4.17-2: Water Supply and Demand

Year	Project Year	Project Phase	Project Demand	Normal-Year Surplus	Single-Dry-Year Surplus	Multiple-Dry-Year Surplus
2025	0	Construction	1,000	12,557	10,650	8,163
2026	0	Construction	1,000	12,557	10,650	8,163
2027	0	Construction	1,000	12,557	10,650	8,163
2028	0	Construction	500	13,057	11,150	8,663
2038	10	O&M	7	13,550	11,643	9,156
2049	20	O&M	7	13,550	11,643	9,156
2064	30	O&M	7	13,550	11,643	9,156

Notes:

All values are in acre-feet unless otherwise noted.

Construction is anticipated to occur over an up to 5-year period in phases and require up to 3,500 acre-feet total; however, construction is conservatively assumed to occur over a 3.5-year period with up to 1,000 acre-feet of water used per year.

Key: O&M = operations and maintenance.

Water for project construction and operation would primarily be provided by SWSD, per the Will-Serve letter in Appendix I.2 and I.3. The water would be delivered at district turnouts on the Project site via SWSD's existing water infrastructure network. Additional water may be sourced from private wells or provided by the other water districts for portions of the proposed Project within their service areas. According to letters received by these districts, the districts strongly support the proposed Project stating that the proposed Project will help to reduce water demands and contribute to the long-term economic and environmental sustainability of the region. Water availability in the region has been constrained in recent years due to prolonged drought necessitating the fallowing of thousands of acres of farmland in coming years. The SWSD plans to fallow up to 58,190 acres by 2040 and implement a water budget that ramps down water consumption from 3 AF/acre in 2025 to 0.57 AF/acre by 2040 (Appendix I.2 and I.3). In this context, the water districts highlight that the proposed Project is a productive and beneficial use of land within their service areas as it offers a win-win scenario by reducing water demand while simultaneously contributing to California's renewable energy objectives. In addition, it provides a valuable opportunity for economic diversification in a region heavily reliant on agriculture.

The total proposed Project water demand of 3,745 AF, or approximately 97 AFY when amortized over the life of the proposed Project, equates to a per-acre consumptive use rate of approximately 0.008 AF/acre per year. This is a 99 percent reduction from the historical land use water demand of 1.43 AF/acre per year or 17,159 AFY for agriculture and is significantly less than the Subbasin sustainable yield target consumptive use rate of approximately 0.73 AF/acre per year.

SWSD has a SWP Table A entitlement of 155,000 AFY. DWR predicts the future average annual Table A allocation to average about 58 percent of contract amounts, which would yield an average supply of approximately 89,900 AFY for SWSD. In its Will Serve letter, SWSD states that the district has sufficient supplies to provide the proposed Project with up to 3,500 AF for construction and 7 AFY for operation. Given this, SWSD is predicted to have sufficient supplies to satisfy the proposed Project's temporary construction demand of 1,000 AFY and negligible operation demand

of 7 AFY. Additionally, the Subbasin is not adjudicated and currently there is no groundwater pumping allocation so the proposed Project can pump groundwater for reasonable and beneficial use without limitation, provided pumping does not cause significant and unreasonable negative impacts to the basin or other users. As described previously, the proposed Project's water demand is a fraction of the historical use at the Project site and would reduce groundwater use in the Subbasin and help achieve sustainable management of the Subbasin. Due to the temporary nature of construction water demands, and due to the small size of the proposed Project's operational demands compared to existing and historical water demands on the Project site, the proposed Project would be consistent with the Subbasin's management actions, including fallowing programs to achieve sustainable management of the Subbasin.

As indicated previously, the Kern County Groundwater Subbasin is currently critically over-drafted and significant reductions in pumping must occur to achieve a sustainable yield. Based on current groundwater modeling results, the sustainable yield of the Subbasin is approximately 1,313,000 AFY. This equates to an annual sustainable yield on an acre-feet per-acre basis of approximately 0.73 AF. Therefore, the sustainable yield of the 11,983-acre portion of the Subbasin occupied by the Project site is approximately 8,748 AFY. The maximum estimated proposed Project's water demand of 1,000 AFY for peak construction and 7 AFY for O&M is significantly less than the sustainable yield for the Project site.

Midway Substation Upgrades

The construction activities would require water uses for activities such as dust suppression, soil compaction, concrete hydration purposes, etc. PG&E estimates that up to four (4) six-person crews working approximately 10-hour days, six days per week would construct the Midway Substation upgrades. As stated above, total water usage during construction including, but not limited to, construction of the Midway Substation upgrades, is expected to involve 1,000 AFY or less, or a maximum of 3,500 AF for the entire 3.5-year construction period. As stated in its Will-Serve Letter in Appendix I.2, SWSD has supplies available to provide water for the construction activities. Operation of the Midway Substation after installing the upgrades would require a negligible amount of water.

Summary

The proposed Project would have sufficient water supplies available to serve the proposed Project and reasonably foreseeable future development during normal, dry, and multiple dry years and impacts would be less than significant.

Mitigation Measures

No mitigation would be required.

Level of Significance after Mitigation

Less than significant.

Impact 4.17-3: Would the Project result in a determination by the wastewater treatment provider which serves or may serve the Project that it has inadequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?

As discussed above, during construction activities a commercial operator would provide portable restrooms and dispose of wastewater at a wastewater treatment facility that it either operates or with which it has contracts, and which has capacity to receive the wastewater for disposal and treatment. Therefore, project construction would not have an impact regarding a public and/or community wastewater treatment system. As previously described, during operations, wastewater would be generated through facilities inside each of the O&M buildings. A single standard on-site septic tank and leach field system would be used at each of the O&M building(s) to dispose of sanitary wastewater. Mitigation Measure 4.17-1 would ensure such facilities be compliant with Kern County Public Health Services Department.

Midway Substation Upgrades

As discussed above, during construction activities a commercial operator would provide portable restrooms and dispose of wastewater at a wastewater treatment facility that it either operates or with which it has contracts, and which has capacity to receive the wastewater for disposal and treatment.

Similar to other O&M buildings within the Project site, the Midway Substation Upgrades may include the construction of an O&M building with restroom facilities requiring installation and maintenance of a septic tank and leach field. Pursuant to Mitigation Measure MM 4.17-1, the septic tank and leach field would require design approval by the Kern County Engineering, Surveying and Permit Services Department.

Summary

The proposed Project would have less than significant impacts regarding the capacity of wastewater treatment provider's facilities with implementation of Mitigation Measure 4.17-1.

Mitigation Measures

Implement Mitigation Measure MM 4.17-1.

Level of Significance after Mitigation

Less than significant.

Impact 4.17-4: Would the Project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

A permitted hauler would dispose Project-generated solid waste at the Shafter-Wasco Landfill, located at 17621 Scofield Avenue approximately 3.81 miles northeast of the Project site. As of 2021, the Shafter-Wasco Landfill has a remaining capacity of 12,874,292 cubic yards of the maximum 21,895,179 cubic yard capacity (CalRecycle 2019). The permitted maximum daily for the Shafter-Wasco Landfill disposal is 1,500 tons per day. The next closest landfill to the Project site is the Taft Landfill, approximately 18.31 miles south of the Project site. As of 2019, the Taft Landfill can accept up to 800 tons per day, has a remaining capacity of 6,896,633, and a maximum permit capacity of 11,000,000 (CalRecycle 2019). Project-generated solid waste would primarily be disposed at the Shafter-Wasco Landfill, and should the Shafter-Wasco Landfill not be available for any reason, the Taft Landfill may be used. Based on the remaining capacity at both landfills, the proposed Project is not expected to generate solid waste in excess of their capacity.

Construction

The proposed Project would likely be built in phases over the course of up to five years. It is anticipated the proposed Project would not generate substantial amounts of non-recyclable waste during construction. Materials will be recycled where feasible, with remaining disposal in landfills in compliance with all applicable regulations. Common construction waste may include metals, masonry, plastic pipe, rocks, dirt, cardboard, or green waste related to land development. Any hazardous waste generated during construction would be disposed at an approved facility.

Construction of the proposed Project would require demolition of existing structures. Several properties within the project boundary contain agricultural structures and single-family dwellings. As described in Chapter 3, *Project Description*, one single-family dwelling on Tax Assessor's Parcel Number 087-040-04 would be removed and an existing dairy would be demolished and discontinued within the proposed Project boundary during project construction. The demolition would be required to adhere to diversion (recycling and/or reuse) of at least 65 percent of the C&D waste. Non-hazardous construction refuse and solid waste would either be collected and recycled or disposed at a local landfill. Non-hazardous construction refuse and solid waste would either be collected and recycled or disposed at a local landfill. As discussed above, the Shafter-Wasco Landfill likely would receive the C&D waste and materials that the proposed Project generates. This landfill accepts batteries, clean dirt, clean inerts (for example, source separated asphalt, brick and concrete); C&D waste (for example, asphalt, brick, concrete, dirt, and metal); dead animals; electronic waste; green waste; ordinary household trash; tires; treated wood waste; and used motor oil. In addition, with the implementation of Mitigation Measure MM 4.17-2, a recycling coordinator would ensure the separation of recyclable materials from solid waste and the disposal of solid waste, during construction of the solar field. Therefore, construction impacts of the main proposed Project on existing landfills are anticipated to be less than significant. By complying with the landfill's regulations and restrictions and through implementation of Mitigation Measure MM 4.17-2, the proposed Project would not generate solid waste in excess of State standards, local

standards, or the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; impacts would thus be reduced to less than significant.

Operations

During operation, limited solid waste would be generated. The O&M buildings would include up to 20 FTE personnel total. Office and maintenance activities would generate solid waste. The Shafter-Wasco Landfill is estimated to close in 2053 and the Tasco Landfill is estimated to close in 2076 and, therefore, both dare expected to serve the proposed Project through its 35-year operational phase. If the Project proponent decides to continue to operate the solar facility beyond the 35-year operational phase, impacts regarding waste disposal would require reevaluation and an alternative source of waste disposal would need to be identified. Given the estimated closure dates of the Shater-Wasco and Tasco Landfills and the potential for project operations to extend beyond the initial, estimated 35-year operational phase, the proposed Project in combination with other sources of solid waste may have the potential to generate solid waste exceeding a local landfill's daily maximum throughput capacity, leading to a potentially significant impact. However, with the implementation of Mitigation Measure MM 4.17-2, a recycling coordinator would ensure the separation of recyclable materials from solid waste and the disposal of solid waste, thereby reducing solid waste generated during operation. By complying with the landfill's regulations and restrictions and through implementation of Mitigation Measure MM 4.17-2, the solid waste produced by the proposed Project would be limited and managed, and impacts related to landfill capacity would be less than significant.

Decommissioning

Upon decommissioning of the proposed Project, solar panels would be removed and placed in secure transport crates or container boxes for storage and transported to another site for reuse, material recycling, or disposal. Bolts and reusable fasteners used to attach each module to the racks would be removed and saved for reuse when possible. Once the solar modules are removed, the racks would be disassembled and the structures supporting the racks would be removed and salvaged or recycled. Electrical equipment would be de-energized prior to removal, salvaged (where possible), placed in appropriate shipping containers, and secured in a truck transport trailer for shipment off-site. Electrical equipment, transformers, and switching gear on the inverter and interconnection transformer pads and all above-ground electrical wiring would be removed and recycled or disposed. Decommissioning of the collection lines would not generate substantial amounts of solid waste. All other above-ground site infrastructure—including fences, awnings, concrete pads that supported the inverters, and related equipment—would be removed. The fence and gate would be removed. Removed materials would be recycled to the greatest extent possible. All debris would be removed from the area.

The proposed solar equipment is estimated to have a lifespan of over 35 years, after which the land could be converted to other uses in accordance with applicable land use regulations in effect at that time, which may include reverting back to agricultural use. Solar PV panels contain valuable materials that likely would be recycled at the end of their useful life. Solar panel manufacturers have identified that approximately 90 percent of materials in solar panel modules can be recycled, where feasible. In the case of both crystalline silicon and thin film CdTe PV technology, a national

PV module recycling network has been established by the U.S. Solar Energy Industry Association for providing module collection and recycling services (see https://www.seia.org/initiatives/seia-national-pv-recycling-program). Decommissioning of the collection lines would not generate substantial amounts of solid waste. As discussed above, the Taft Landfill is expected to be in operation through 2076 and is anticipated to serve as a solid waste disposal location during decommissioning. Nevertheless, decommissioning of the proposed Project has the potential to contribute to the exceedance of the daily maximum throughput of the Taft Landfill, leading to a potentially significant impact.

Midway Substation Upgrades

Solid waste from the construction and decommissioning of the Midway Substation upgrades would be disposed at the same landfills as described above for other construction and demolition activities involved with the proposed Project. Similar to other construction and demolition activities, the Midway Substation upgrades are not anticipated to generate substantial amounts of non-recyclable waste during construction. Materials will be recycled where feasible, with remaining disposal in landfills in compliance with all applicable regulations. Common construction waste may include metals, masonry, plastic pipe, rocks, dirt, cardboard, or green waste related to land development. Any hazardous waste generated during construction and/or decommissioning would be disposed at an approved facility. Construction of the Midway Substation upgrades would involve demolition of a portion of an existing perimeter wall but is not anticipated to generate substantial solid waste that would cause the Shater-Wasco and/or Tasco Landfills to exceed their maximum daily throughput or overall capacity. As discussed above, the Taft Landfill is expected to be in operation through 2076 and is anticipated to serve as a solid waste disposal location during decommissioning. Nevertheless, decommissioning of the proposed Project has the potential to contribute to the exceedance of the daily maximum throughput of the Taft Landfill, leading to a potentially significant impact. PG&E should comply with the landfill's regulations and restrictions, and implement Mitigation Measure MM 4.17-2, to reduce impacts related to landfill capacity to a less than significant level.

During operation and maintenance, limited solid waste (for example, solid waste from obsolete or malfunctioning infrastructure that must be removed and replaced) would be generated. As stated above, if the Project proponent decides to continue to operate the solar facility beyond the 35-year operational phase, impacts regarding waste disposal would require reevaluation and an alternative to the Shater-Wasco and/or Tasco Landfills would need to be identified for solid waste disposal. Given the estimated closure dates of the Shater-Wasco and Tasco Landfills and the potential for project operations to extend beyond the initial, estimated 35-year operational phase, the proposed Project in combination with other sources of solid waste may have the potential to generate solid waste exceeding a local landfill's daily maximum throughput capacity, leading to a potentially significant impact. PG&E should implement Mitigation Measure MM 4.17-2, which would require a recycling coordinator to ensure the separation of recyclable materials from solid waste and the disposal of solid waste, thereby reducing solid waste generated during operation.

Summary

The proposed Project would generate potentially significant but mitigable impacts regarding solid waste-related state or local standards, local infrastructure capacity, and solid waste reduction goals. However, by complying with the landfill's regulations and restrictions, along with implementation of Mitigation Measure MM 4.17-2, impacts would be less than significant after mitigation.

Mitigation Measures

MM 4.17-2: Prior to issuance of a grading or building permit (whichever occurs first), an on-site Waste Disposal and Recycling Coordinator shall be designated by the project proponent/operator to facilitate waste disposal and recycling as part of the Maintenance, Trash Abatement, and Pest Management Program. The provisions listed below shall apply to the project:

a. The project proponent/operator shall provide a storage area for waste and recyclable materials within the fenced project area that is clearly identified for waste and recycling. This area shall be shown on a site plan submitted to the Kern County Planning and Natural Resources Department and maintained on the site during construction, operations, and decommissioning.

b. During construction, operation, and decommissioning, debris and waste generated shall be recycled to the maximum extent feasible.

c. The Waste Disposal and Recycling Coordinator shall facilitate recycling of all construction and decommissioning waste through coordination with contractors, local waste haulers, and/or other facilities that recycle construction/demolition wastes.

d. The Waste Disposal and Recycling Coordinator shall coordinate with Kern County Public Works Department – Solid Waste Division the acceptance for disposal or recycling of construction and decommissioning waste prior to being transported to any public disposal facility.

e. The Waste Disposal and Recycling Coordinator shall ensure that materials transported to public disposal facilities for recycling shall be separated by material type so as not to be co-mingled or contaminated with waste material.

f. The Waste Disposal and Recycling Coordinator shall also be responsible for ensuring wastes requiring special disposal are handled according to State and County regulations that are in effect at the time of disposal.

g. Contact information of the coordinator shall be provided to the Kern County Planning and Natural Resources Department prior to issuance of building permits.

Level of Significance after Mitigation

Less than significant.

Impact 4.17-5: Would the Project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

The proposed Project would generate C&D waste during construction and decommissioning, as well as solid waste and recyclables from operations, leading to a potentially significant impact should waste not be properly stored, maintained, and/or disposed. Common construction waste may include metals, masonry, plastic pipe, rocks, dirt, cardboard, or green waste related to land development. AB 341 encourages Kern County to attain a waste diversion goal of 75 percent by 2020 through reduction, recycling, or composting, and AB 939 requires at least 50 percent diversion from landfills through waste reduction and recycling. In addition, as part of compliance with CALGreen requirements, Kern County implements the following construction waste diversion requirements that would apply to the proposed Project:

- Submittal of a Construction Waste Management Plan;
- Recycle and/or reuse a minimum 65 percent C&D waste; and
- Recycle or reuse 100 percent of tree stumps, rocks, and associated vegetation and soils resulting from land clearing.

Implementation of Mitigation Measure MM 4.17-2 would ensure compliance with waste diversion and recycling requirements by requiring recycling during construction, operation, and decommissioning of the main project. The proposed Project would be required to comply with all federal, State, and local statutes and regulations related to the handling and disposal of solid waste.

Midway Substation Upgrades

Similar to other aspects of the proposed Project, the Midway Substation upgrades would generate C&D waste during construction and decommissioning, as well as solid waste and recyclables from operations, leading to a potentially significant impact should waste not be properly stored, maintained, and/or disposed. Common construction waste may include metals, masonry, plastic pipe, rocks, dirt, cardboard, or green waste related to land development. Waste from the Midway Substation upgrades also would be subject to the waste diversion and recycling requirements of AB 341 and AB 939. Further, PG&E should implementation Mitigation Measure MM 4.17-2 to divert waste that is generated from the construction, operation, and decommissioning of the Midway Substation upgrades.

Summary

Therefore, implementation of the proposed Project would result in less than significant impacts regarding compliance with management and reduction statutes and regulations related to solid waste.

Mitigation Measures

Implement Mitigation Measure MM 4.17-2, as described above.

Level of Significance after Mitigation

Less than significant.

4.17.5 Cumulative Setting, Impacts, and Mitigation Measures

Cumulative Setting

Other projects included in the cumulative analysis of impacts regarding water supply and wastewater include those that would impact the Kern County Subbasin. Other projects included in the analysis of impacts regarding stormwater drainage, electricity, telecommunications, and solid waste disposal, include those that would rely on the same facilities and infrastructure as the proposed Project. The proposed Project's contribution to cumulative impacts are considered significant if they involve a cumulatively considerable contribution to a significant cumulative impact resulting from the proposed Project's impacts in combination with other past, present, or reasonably foreseeable projects (listed in **Table 3-4:** *Cumulative Projects List*, in Chapter 3, *Project Description*). Physical impacts regarding utilities and service systems are usually associated with population in-migration and growth in an area, which increase the demand for a particular service, leading to the need for expanded or new facilities the provision of which has an adverse impact on the physical environment. As discussed above, the proposed Project would result in a temporary increase in population during the estimated five-year (maximum) construction period and would involve up to 20 employees during the operational phase of the proposed Project. Given that the construction period would be limited, construction activities would not result in long-term increases in population. Furthermore, employees for the construction and operation of the proposed Project likely would come from existing communities within proximity to the Project site or, if relocating from a more distant location, could be accommodated without increasing utilities and services or expanding public facilities.

Implementation of Mitigation Measure MM 4.7-1 and Mitigation Measure MM 4.10-1 (see Section 4.10, *Hydrology and Water Quality*) would reduce significant impacts involving water and wastewater facilities. The proposed Project would not result in impacts involving natural gas-related infrastructure.

Water

Several utility-scale renewable energy and other projects are operating and proposed in the Central Valley that impact and would impact the existing water supply. Given the limited water supply in the area, other projects are expected to either rely on new or existing wells or truck in their water supply (similar to the proposed Project). All projects relying on water from the basin would be required to obtain water from suppliers that have existing water rights or would be required to apply for new water rights. Any projects that cannot secure a water supply would not move forward to construction or operation. Furthermore, water use for solar projects is generally less than other uses that are existing in the area, such as agriculture. In instances where solar projects replace more water-intense uses, the water demand would be reduced, as is the case for the proposed Project. Thus, because the proposed Project would result in a reduction in water usage compared to existing

conditions and, therefore, will not make a cumulatively considerable contribution to cumulative groundwater resources impacts.

Wastewater

The proposed Project is located in an area with no wastewater treatment provider or infrastructure and is not expected to generate a significant amount of wastewater. As discussed above, during construction activities a commercial operator would provide portable restrooms and dispose of wastewater at a wastewater treatment facility that it either operates or with which it has contracts, and which has capacity to receive the wastewater for disposal and treatment. In addition, the proposed Project includes the installation of a septic systems and leach fields at each O&M building to treat and dispose wastewater that is generated during the operation of the proposed Project and comply with Mitigation Measure MM 4.17-1. Project operations would not have an impact regarding a public and/or community wastewater treatment system on which other projects included in the analysis of cumulative impacts might rely. Therefore, the proposed Project would not have the potential, when combined with impacts from past, present, or reasonably foreseeable projects, to result in a cumulative impact to a regional wastewater treatment facility or the capacity of said facilities.

Stormwater Drainage

The proposed Project is located in a remote, rural region. As described above, the proposed Project would be subject to Kern County Public Works Department storm water requirements, which include measures to address stormwater controls on both management of runoff volume and water quality, including controlling erosion. The Project proponent would be required to obtain coverage under the SWRCB Construction General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (2012-0006-DWQ). As a standard requirement for enrolling under this permit, a SWPPP as necessary would be prepared for the proposed Project which would be maintained throughout construction of the proposed Project. Additionally, the proposed Project would be required to adhere to Kern County Public Works Department stormwater requirements, which include measures to manage runoff volume and water quality, including controlling erosion and protection of water quality during storm events. Further, the hydrologic study and final drainage plan required by Mitigation Measure MM 4.10-2 would detail any necessary design features required to properly control stormwater runoff on-site from the proposed Project.

Each project proponent for the projects included in the cumulative analysis also would be required to prepare a hydrologic study and final drainage plan to avoid substantial increases of stormwater generated by the respective project. Depending on the findings of the respective hydrologic studies and final drainage plans, these projects may need to include stormwater control structures on-site to reduce the potential for increased stormwater runoff. Other projects in the vicinity would be required to offset substantial increases in stormwater as well per County requirements and would also be required to implement BMPs, as well as comply with the National Pollutant Discharge Elimination System General Construction Permit and their respective SWPPP as applicable. Therefore, cumulative impacts would be less than significant, and the proposed Project's contribution would not be cumulatively considerable.

Electric Power

Electricity is not expected to be consumed in large quantities during project construction, as construction equipment and vehicles are not electric (but rather diesel- or gas-powered). This proposed Project in combination with other cumulative solar projects would help to reduce or offset electricity on the statewide utility grid and therefore provide a beneficial cumulative impact on electrical demand and facilities. As described in Section 4.6, *Energy*, the total project electricity demand is 88,451,524 kWh per year. The proposed Project is estimated to produce 3,390,332,060 kWh per year of renewable energy from the 2-GW solar system, which more than offsets the energy consumed annually to operate the proposed Project. The proposed Project, in combination with other cumulative electric power generation projects, would help to reduce or offset electricity on the statewide utility grid and therefore provide a beneficial cumulative impact on electrical demand and facilities.

Natural Gas

No natural gas is proposed to be used in conjunction with the proposed Project. Therefore, the proposed Project would not make a cumulatively considerable contribution to a significant cumulative impact regarding natural gas utilities.

Telecommunications

The proposed Project in combination with cumulative projects would increase demand for telecommunication facilities. However, demand associated with energy projects and other cumulative development would be minimal and is expected to be within the planning forecasts of the affected telecommunications providers. Therefore, the proposed Project will not make a cumulatively considerable contribution to a significant cumulative impact regarding telecommunications facilities.

Solid Waste

As described above, demolition and construction materials will be recycled where feasible, with remaining disposal in landfills in compliance with all applicable regulations. In addition, materials brought to the Project site would be used to construct facilities. Non-hazardous construction refuse and solid waste would either be collected and recycled or disposed at a local landfill. In addition, the proposed Project would generate solid waste during operation that is not expected to exceed local landfill capacities and significantly impact Kern County landfills. The Shafter-Wasco Landfill is expected to operate until 2053, and the Taft Landfill is expected to operate until 2076 and could accommodate solid waste generated during construction, operation, and decommissioning of the proposed Project. However, the proposed Project in combination with waste generated from other projects and cumulative increases in population growth in the communities that dispose of solid waste at the Shafter-Wasco Landfill and Taft Landfill, could exceed current waste generation and disposal estimates thereby causing these landfills to reach maximum capacity sooner than currently estimated. To ensure that the proposed Project reduces the amount of waste sent to landfills, implementation of Mitigation Measure MM 4.17-2 requires that any waste generated shall be recycled to the extent feasible. With implementation of Mitigation Measure MM 4.17-2, the

proposed Project's incremental contribution would be less than cumulatively considerable. Furthermore, other projects included in the analysis of cumulative impacts also would be required to comply with State and local waste reduction policies.

Midway Substation Upgrades

The proposed Project includes enlarging the Midway Substation's 500-kilovolt (kV) yard within the PG&E-owned Midway Substation property boundaries. The Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities as part of the proposed Project. PG&E may install two four-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest of the Midway Substation property. Other activities include: installing up to nine, 67.5 cubic feet underground substructure vaults along the conduit trenches; removing an existing precast security wall at the northwest side of the Midway Substation and replacing it with a new 12-foot wall; grading of the connection area; installing approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker; equipment foundations and concrete trenches; equipment cabinets; bus structures; communication lines; conduits; pull boxes; and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway Substation to the Point of Change of Ownership for the proposed Project. Up to four approximately 175-foot-tall lattice steel towers or tubular steel poles would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads. For a detailed description of the Midway Substation upgrades, see Section 3.0, *Project Description.*

Water

The construction activities would require water uses for activities such as dust suppression, soil compaction, concrete hydration purposes, etc. PG&E estimates that up to four (4) six-person crews working approximately 10-hour days, six days per week would construct the Midway Substation upgrades. As stated above, total water usage during construction including, but not limited to, construction of the Midway Substation upgrades, is expected to involve 1,000 AFY or less, or a maximum of 3,500 AF for the entire 3.5-year construction period. As stated in its Will-Serve Letter in Appendix I.2, SWSD has supplies available to provide water for the construction activities. Operation of the Midway Substation after installing the upgrades would require a negligible amount of water and would not make a cumulatively considerable contribution to significant impacts involving the installation or relocation of water facilities.

Wastewater Treatment

As discussed above, during construction activities a commercial operator would provide portable restrooms and dispose of wastewater at a wastewater treatment facility that it either operates or with which it has contracts, and which has capacity to receive the wastewater for disposal and treatment.

Similar to other O&M buildings within the Project site, the Midway Substation Upgrades may include the construction of an O&M building with restroom facilities requiring installation and maintenance of a septic tank and leach field. Pursuant to Mitigation Measure MM 4.17-1, the septic tank and leach field would require design approval by the Kern County Engineering, Surveying and Permit Services Department, and would not make a cumulatively considerable contribution to a significant cumulative impact involving the installation and/or use of onsite wastewater treatment systems.

Stormwater Drainage

Similar to other parcels within the Project site, the Midway Substation site is relatively flat. Construction activities would adhere to Kern County Public Works Department storm water requirements. Additionally, the Project proponent would be required to prepare a SWPPP to ensure construction would not require new or expanded stormwater drainage facilities. The upgrades to the Midway Substation do not include the installation of impervious surfaces capable of altering drainage and flowpaths and, therefore, would not make a cumulatively considerable contribution to the installation, use, or decommissioning of stormwater drainage facilities.

Electric Power

As described in Section 4.6, *Energy*, construction of the Midway Substation upgrades would require a negligible amount of electricity and would not require or result in the relocation or construction of new or expanded electric power facilities, the construction or relocation of which could cause significant environmental effects. Further, as described above, the proposed Project would result in a net generation of approximately 3,301,880,536 kWh (3,301 GWh) of electricity per year; the Midway Substation upgrades are an important component to tying into the grid and providing this energy to PG&E customers. As stated above, for the 2021 fiscal year, PG&E had an annual electric sale to customers of approximately 77,886,999,998 kWh (77,887 GWh) (CEC 2024a). Cumulative environmental impacts associated with the installation of the facilities that would provide electric power for operation of the Midway Substation upgrades are evaluated in this Draft EIR. Where feasible, mitigation measures are provided to address significant impacts from the installation and use of the facilities.

Natural Gas

The Midway Substation upgrades will not use natural gas during the construction and/or operational phase and, therefore, would not require or result in the relocation or construction of new or expanded natural gas facilities, the construction or relocation of which could cause significant environmental effects. Thus, the Midway Substation upgrades would not contribute cumulative impacts associated with the installation and/or relocation of natural gas-related facilities.

Telecommunications

To support the proposed Buttonbush Solar and Storage Project's communication infrastructure, PG&E may install two (2) four-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest. This fiber-

optic line is critical for the safe and efficient operation of the proposed Project. The fiber-optic line route will be trenched underground from the Midway Substation to the Point of Change of Ownership. It is anticipated that the first conduit path will exit the existing PG&E Midway Substation near the northwest corner of the fence corner, continue west for approximately 300 feet before turning north for approximately 1,400 feet, and then terminate at the Point of Change of Ownership. It is anticipated that the second conduit path will emerge from the substation out of the north fence approximately 160 feet from the northwest corner of the substation, route north for approximately 60 feet before heading west for approximately 500 feet, then turn north for approximately 1,400 feet, and then terminate at the proposed Project Point of Change of Ownership. Minor route modifications may be required at the time of construction due to unanticipated constraints. PG&E will install up to nine underground substructure vaults along the conduit trenches to support pulling the cable, housing excess cable storage, and supporting cable splice locations if required. The approximately 3-foot by 5-foot by 4.5-foot vaults will be installed along each conduit path between the Midway Substation and the Point of Change of Ownership. The trench will be backfilled with a layer of fluidized thermal concrete (red in color) with another layer of a diggable low PSI fluidized thermal backfill.

Cumulative environmental impacts associated with the installation and maintenance of the Midway Substation communication facilities are evaluated in this Draft EIR. Where feasible, mitigation measures are provided to reduce the Midway Substation's contribution to impacts from the installation and use of the facilities (for example, mitigation measures are provided to minimize dust generation during ground disturbance and avoid any special status species which may be located in proximity to construction activities).

Solid Waste

Similar to other components of the proposed Project, demolition and construction materials from the Midway Substation upgrades will be recycled where feasible, with remaining disposal in landfills in compliance with all applicable regulations. In addition, materials brought to the Project site would be used to construct facilities. Non-hazardous construction refuse and solid waste would either be collected and recycled or disposed at a local landfill. In addition, the Midway Substation upgrades would generate solid waste during operation that is not expected to exceed local landfill capacities and significantly impact Kern County landfills. The Shafter-Wasco Landfill is expected to operate until 2053, and the Taft Landfill is expected to operate until 2076 and could accommodate solid waste generated during construction, operation, and decommissioning of the Midway Substation upgrades. However, the Midway Substation upgrades in combination with waste generated from other projects and cumulative increases in population growth in the communities that dispose of solid waste at the Shafter-Wasco Landfill and Taft Landfill, could exceed current waste generation and disposal estimates thereby causing these landfills to reach maximum capacity sooner than currently estimated. To ensure that PG&E reduces the amount of waste sent to landfills, PG &E should implement Mitigation Measure MM 4.17-2 which requires that any waste generated shall be recycled to the extent feasible. With implementation of Mitigation Measure MM 4.17-2, the Midway Substation's incremental contribution would not be cumulatively considerable. Furthermore, other projects included in the analysis of cumulative impacts also would be required to comply with State and local waste reduction policies.

Summary

Implementation of Mitigation Measure MM 4.7-1 and Mitigation Measure MM 4.10-1 (see Section 4.10, *Hydrology and Water Quality*) would reduce significant impacts involving water and wastewater facilities. The proposed Project would not result in impacts involving natural gas-related infrastructure. However, as described in other sections of this Draft EIR, the installation, operation, and/or decommissioning of certain utilities would contribute to unavoidable, significant impacts regarding certain environmental topics and resources (for example, cumulative air quality impacts due to construction-generated emissions and cumulative impacts involving special status species).

Mitigation Measures

Implement Mitigation Measures MM 4.10-1, MM 4.17-1, and MM 4.17-2.

Level of Significance after Mitigation

Less than significant.

Section 4.18

Wildfire

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Section 4.18
Wildfire

4.18.1 Introduction

This section of the Draft Environmental Impact Report (EIR) describes the affected environment and regulatory setting of the proposed Buttonbush Solar and Storage Project (proposed Project) related to wildfire. The section includes the physical and regulatory setting for the proposed Project, the methods used in evaluating these potential impacts, the criteria used to evaluate the significance of potential impacts, and an analysis of potential impacts from wildfire. It also describes the impacts regarding wildfire that would result from implementation of the proposed Project and identifies mitigation measures to address adverse impacts.

The analysis in this section is based on the project plans, mapped areas designated by California Department of Forestry and Fire Protection (CAL FIRE), Kern County Fire Hazards Severity Zone (FHSZ) (CAL FIRE 2025) Maps, and the *Biological Resources Technical Report* (Appendix D.2of this Draft EIR).

4.18.2 Environmental Setting

Site Characteristics and Fire Environment

The Project site primarily consists of active agricultural lands and supporting infrastructure, orchards, a dairy, and a few single-family residences. The majority of the Project site has been disturbed and developed primarily by agricultural uses. The native vegetative communities that were historically present have since been altered due to agricultural production, developed lands and ornamental plantings. The Project site and surrounding lands are mostly flat and exhibit little topographic variation with elevations ranging from approximately 245 feet above mean sea level in the northwest to approximately 320 feet above mean sea level in the southeast. Existing land uses in the vicinity of the Project site generally include scattered rural residences, active agricultural lands, undeveloped lands, utility transmission and distribution lines, and access roadways, along with other approved solar developments in the region.

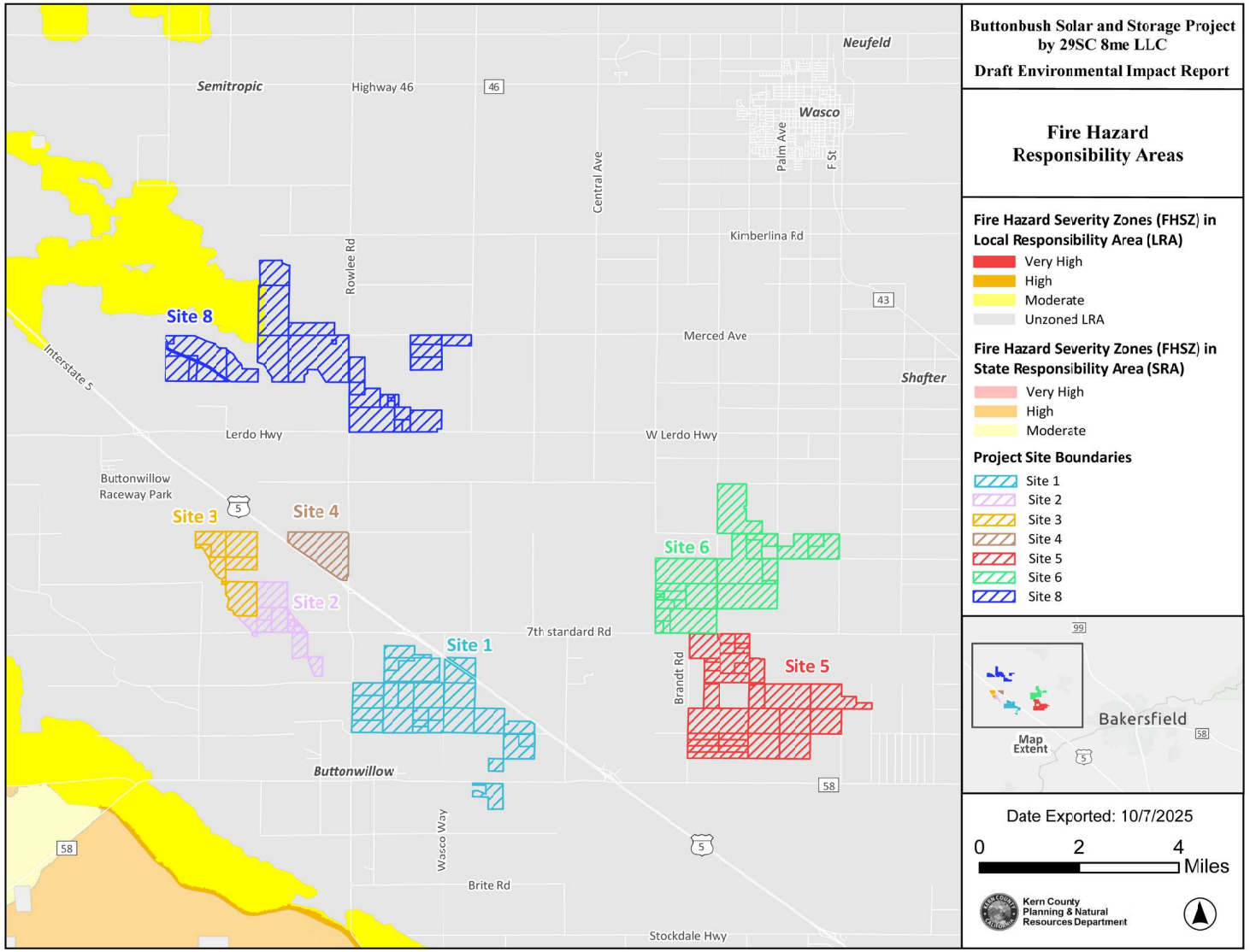
Fire Hazards Areas

CAL FIRE is responsible for providing mapped areas of FHSZs that are based on fire likelihood and fire behavior influenced by factors such as fuel (vegetation), slope and terrain, and fire weather (wind patterns that influence blowing embers) to identify the degree of fire hazard throughout California (that is, moderate, high, or very high). While FHSZs do not predict when or where a wildfire will occur, they identify areas where wildfire hazards could be more severe and, therefore, greater potential damage. According to the FHSZ map published by CAL FIRE dated March 10, 2025, the proposed Project is located approximately 7.75 miles southwest of a High FHSZ in a State Responsibility Area (SRA) and is located entirely within a Local Responsibility Area (LRA)

(CAL FIRE 2025) (**Figure 4.18-1:** *Fire Hazard Responsibility Areas*). As illustrated, a small portion of Site 8 is classified as LRA Moderate FHSZ, and the remainder of the Project site is outside of the designated FHSZs.

Moderate zones are typically wildland supporting areas of low fire frequency and relatively modest fire behavior. Areas that are not zoned are generally urbanized and not susceptible to wildland conflagrations.

Figure 4.18-1. Fire Hazard Responsibility Areas



Slope/Terrain

Terrain influences fire hazard by affecting fire spread rates. Typically, steep terrain results in faster fire spread up slope and slower spread down slope. Terrain features that form a funneling effect—such as chimneys, chutes, or saddles—on the landscape can result in especially intense fire behavior, including faster spread and higher intensity. Conversely, flat terrain tends to have little effect on fire spread, resulting in fires that are driven by vegetation and wind. The Project site is located primarily on flat terrain, currently either used for agricultural operations and/or vacant undisturbed land designated for agricultural use. Elevations within the Project site range from approximately 245 feet above mean sea level (msl) in Site 1 in the low-lying Jerry Slough to approximately 320 feet above msl in Site 3 at the southeast end of Semitropic Ridge. Overall, the ground surface is relatively flat with a gentle gradient to the northwest.

Climate/Weather

The proposed Project is located within the San Joaquin Valley Air Basin that experiences a Mediterranean climate. The climate is characterized by sparse rainfall that occurs in winter, with hot dry summers. Winds typically blow from the northwest of the Project site with average wind speed of 4.38 miles per hour (Weather Underground 2024). Air temperature in the winter ranges from an average of low to mid-40s °F and in the summer averages between mid-90s °F to mid-110s °F (WRCC 2024).

Fire History

Fire history information can provide an understanding of fire frequency, fire type, most vulnerable Project sites, and significant ignition sources. Fire history represented in this section uses CAL FIRE's Incident Maps that show fires back through 2016 (CAL FIRE 2024). Based on a review of these maps, no fires in recorded history have burned across the Project site.

Vegetation (Fuels)

As stated above, the majority of the Project site is in agricultural production and includes orchards and ornamental planting. Other vegetation includes grasses and scrub plants. Within the Project site, approximately 1,028.9 acres are disturbed habitat and include disked, tilled, or cleared fields that are not irrigated and human-made basins, ditches, and settling ponds; soil stockpiles; unpaved access roads; and staging areas; approximately 297.6 acres are urban/developed areas and include the existing substation, roads, and parking; approximately 3,406.1 acres are orchards; and approximately 109.4 acres are non-native grasslands. A description of the vegetation communities and land cover types is provided in Chapter 4.4, *Biological Resources*, and the *Biological Resources Technical Report* (Appendix D.2).

Fire Protection Facilities and Services

The Project site is located in the jurisdictional response area of the Kern County Fire Department (KCFD). KCFD provides fire protection services to an area of over 8,000 square miles with 46 fire stations located throughout Kern County. KCFD also has 14 mutual aid agreements with neighboring fire suppression organizations. Kern County Fire Station 25 is the closest fire station

to the Project site, which is approximately one mile (at the closest point) west of the Project site at 100 Mirasol Avenue, Buttonwillow, California 93206. A detailed discussion of fire protection facilities and services related to the proposed Project is included in Section 4.14, *Public Services*.

Regional Wildfire Conditions

Kern County (County) encompasses the southern portion of the Central Valley floor and is bound to the west by the southern slopes of the coastal mountain ranges and to the east by the southern slopes of the eastern Sierra Nevada, and to the south by the northern slopes of the San Emigidio and Tehachapi Mountains. Both mountain ranges are surrounded by and intermingled with areas highly susceptible to wildfires such as steep, hilly areas covered by grass and woodlands. Wind also represents a factor which influences the spread of wildfire (KCFD Office of Emergency Services 2022).

4.18.3 Regulatory Setting

Federal

National Fire Plan

The Department of the Interior's National Fire Plan is intended to ensure an appropriate federal response to severe wildland fires, reduce fire impacts to rural communities, and ensure sufficient firefighting capacity in the future. The plan addresses five key points: Firefighting, Rehabilitation, Hazardous Fuels Reduction, Community Assistance, and Accountability. The Rural Fire Assistance program is funded to enhance the fire protection capabilities of rural fire districts and safe and effective fire suppression in the wildland/urban interface. The program promotes close coordination among local, state, tribal, and federal firefighting resources by conducting training, equipment purchase, and prevention activities on a cost-shared basis.

North American Electric Reliability Corporation Reliability Standards

In compliance with Section 215 of the Federal Power Act, North American Electric Reliability Corporation developed mandatory and enforceable reliability standards such as emergency preparedness and operations; facilities design, connections, and maintenance; personnel performance, training, and qualifications; and protection and control. These standards would ensure reliable energy production, as well as safe operation and maintenance (O&M) practices.

Federal Energy Regulatory Commission Standards

The Federal Energy Regulatory Commission requires utilities to adopt and maintain minimum clearance standards between vegetation and transmission high-voltage power lines. These clearances vary depending on voltage. In most cases, the minimum clearances required in state regulations are greater than the federal requirement. In California for example, the state has adopted General Order 95 rather than the North American Electric Reliability Corporation Standards as the electric safety standard for the state. Federal Energy Regulatory Commission standards are not discussed further.

National Electric Safety Code 2017

The National Electric Safety Code covers basic provisions related to electric supply stations, overhead electric supply and communication lines, and underground electric supply and communication lines. The code also contains work rules for construction, maintenance, and operational activities associated with electric supply and communication lines and equipment. The code, which must be adopted by states on an individual basis, is not applicable in the State of California. As stated previously, the State of California has adopted its own standard (General Order 95) rather than a general national standard. The National Electric Safety Code is not discussed further.

Institute of Electrical and Electronics Engineers Standards 516–2009

The Institute of Electrical and Electronics Engineers is a leading authority in setting standards for the electric power industry. Standard 516-2009, Guide for Maintenance Methods on Energized Power Lines, establishes minimum vegetation-to-conductor clearances in order to maintain electrical integrity of the electrical system.

National Fire Protection Association Codes, Standards, and Guides

National Fire Protection Association (NFPA) codes, standards, recommended practices, and guides are developed through a consensus standards development process approved by the American National Standards Institute. This process brings together professionals representing varied viewpoints and interests to achieve consensus on fire and other safety issues. NFPA standards are recommended guidelines and nationally accepted good practices in fire protection but are not laws or codes unless adopted as such or referenced as such by the California Fire Code or the local fire agency.

NFPA Standard 855, Standard for the Installation of Stationary Energy Storage Systems, was created to address increased use of new technologies in modern energy storage systems (ESSs) and the fire and life safety hazards associated with them. The NFPA standardizes criteria for fire protection of ESS installations based on the technology used in the ESS, environmental setting, size and separation of ESS installations, and the fire suppression and control systems in place. It also considers ventilation, detection, signage, listings, and emergency operations responding to ESS emergencies (NFPA 2023).

International Fire Code

Created by the International Code Council, the International Fire Code (IFC) addresses a wide array of conditions hazardous to life and property, including fire, explosions, and hazardous materials handling or usage (although not a federal regulation, but rather the product of the International Code Council). The IFC places an emphasis on prescriptive and performance-based approaches to fire prevention and fire protection systems. Updated every three years, the IFC uses a hazards classification system to determine the appropriate measures to be incorporated to protect life and property (often times these measures include construction standards and specialized equipment). The IFC uses a permit system (based on hazard classification) to ensure that required measures are instituted.

State

California Department of Forestry and Fire Protection

Strategic Fire Plan for California

The 2018 Strategic Fire Plan for California directs each CAL FIRE Unit to prepare a locally specific Fire Management Plan (State Board of Forestry and Fire Protection and CAL FIRE 2018). These documents assess the fire situation within each of CAL FIRE's 21 units and six contract counties. The plans include stakeholder contributions and priorities and identify strategic areas for pre-fire planning and fuel treatment, as defined by the people who live and work with the local fire problem. The plans are required to be updated annually.

Assembly Bill 1054

Assembly Bill (AB) 1054 provides for a Wildfire Fund that electrical corporations may access upon meeting specific requirements. Electrical corporations must opt into the fund, make financial commitments, and maintain a safety certificate from the California Public Utilities Commission (CPUC), among other conditions. In July 2019, Pacific Gas & Electric (PG&E) opted into the Wildfire Fund, and contributed approximately $5 billion into the fund, representing PG&E's initial and first annual contribution (PG&E 2020).

Public Utilities Code Section 8389(e)(1–7)

This section specifies the requirements for an electrical corporation to obtain a safety certification by documenting the following: an approved wildfire mitigation plan, good standing, an established safety committee composed of members with relevant safety experience, an executive incentive compensation structure to promote safety as a priority, an established board-of-director-level report to the commission on safety issues, a compensation structure for new or amended contracts for executive officers, and implementation of its approved wildfire mitigation plan.

California Fire Code 2022, Section 1206

The 2022 California Fire Code (Title 24, Part 9 of the California Code of Regulations) establishes regulations to safeguard against the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The Fire Code also establishes requirements intended to provide safety for, and assistance to, firefighters and emergency responders during emergency operations. The provisions of the Fire Code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout California. Chapter 6 (Building Services and Systems) of the Code focuses on building systems and services as they relate to potential safety hazards and when and how they should be installed. Building services and systems are addressed and include emergency and standby power systems, electrical equipment, wiring and hazards, and stationary storage battery systems. Chapter 33 (Fire Safety During Construction and Demolition) of the Code outlines general fire safety precautions to maintain required levels of fire protection, limit fire spread, establish the appropriate operation of equipment and promote prompt

response to fire emergencies. The Fire Code includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems (for inhabited structures), fire service features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and wildland-urban interface areas.

California Fire Code, Section 1205, outlines requirements for solar photovoltaic (PV) power systems. Ground-mounted solar PV systems shall comply with Section 1205.5. This section includes requirements for signage and marking on the PV system. Other requirements include pathways to assist in smoke ventilation and therefore control. Specifically, for ground-mounted arrays, Section 1205 requires access roads for fire apparatus and a vegetation control zone clear of brush or combustible vegetation. California Fire Code 2022, Section 1206, outlines requirements for ESSs designed to provide electrical power to a building or facility. Permits shall be obtained prior to the installation and operation of ESSs, and construction documents shall provide information related to fire safety, such as the location and layout of the room in which the stationary storage battery system is to be installed; details on hourly fire-resistance-rated assemblies provided; quantities and types of storage batteries and battery systems; manufacturer's specifications, ratings, and listings of storage batteries/systems; details on energy management systems; location and content of signage; details on fire-extinguishing, smoke detection, and ventilation systems; and rack storage arrangement, including seismic support criteria. Additionally, this section establishes standards for the design of stationary storage battery systems, arrays, and signage to enhance fire safety and detect and extinguish fires.

Public Resources Code 4291–4299

California Public Resources Code Sections (PRC) 4291—4299 et seq. require that brush, flammable vegetation, or combustible growth within 100 feet of buildings be maintained. Vegetation that is more than 30 feet from the building, less than 18 inches high, and important for soil stability, may be maintained as may single specimens of trees or other vegetation that is maintained so as to manage fuels and not form a means of rapid fire transmission from other nearby vegetation to a structure. Additionally, the Public Resources Code outlines infraction fees, certification, and compliance procedures applicable with state and local building standards, including those described in subdivision (b) of Section 51189 of the Government Code.

California Government Code

California Government Code Sections 51175 through 51189 provide guidance for classifying lands in California as fire hazard areas and requirements for management of property within those lands. As stated above, CAL FIRE is responsible for classifying FHSZs based on statewide criteria and makes the information available for public review. Furthermore, local agencies must designate, by ordinance, Very High FHSZs within their jurisdiction based on the recommendations of CAL FIRE

California Public Utilities Commission General Orders 128 and 165

General Order (GO) 128 establishes rules governing the construction of underground electric and communication lines by utilities to promote and safeguard public health and safety. GO 165 establishes requirements for inspections of electric distribution and transmission facilities (excluding those facilities contained in a substation) in rural, high fire threat areas in order to ensure safe and high-quality electrical service.

California Public Utilities Commission General Order 95: Rules for Overhead Transmission Line Construction

CPUC GO 95 governs the design, construction, and maintenance of overhead electrical lines by utilities. Rule 31.1 generally states that this should be done in accordance with accepted good practices for the given location conditions known at the time by the persons responsible for the design, construction, and maintenance of the overhead electrical lines and equipment. Rule 35 of GO 95 requires the following clearances between bare-line conductors and vegetation in high fire threat areas:

- Four-foot radial clearances for any conductor of a line operating at 2,400 volts or more, but less than 72,000 volts
- Six-foot radial clearances for any conductor of a line operating at 72,000 volts or more, but less than 110,000 volts
- Ten-foot radial clearances for any conductor of a line operating at 110,000 volts or more, but less than 300,000 volts
- Fifteen-foot radial clearances for any conductor of a line operating at 300,000 volts or more

California Public Utilities Commission Fire Threat Zones

In 2018, the CPUC approved a statewide Fire Threat Map (CPUC 2024) that delineates a High Fire Threat District and is intended to assist with implementation of new fire prevention rules. The map delineates areas in the state where there is an elevated risk and an extreme risk (including likelihood and potential impacts on people and property) from utility-associated wildfires. The Fire Threat Map helps prioritize fire hazard areas to allow for implementation of new fire safety regulations that the CPUC adopted in December 2017. Electric investor-owned utilities must file an annual report that contains a fire-prevention plan containing specified information for its overhead electric facilities in the High Fire Threat District. Increased vegetation management and new fire regulations also apply to the High Fire Threat District. The Project sites are not located in an area designated as having elevated or extreme fire threat (CPUC 2024).

Power Line Fire Prevention Field Guide 2021 Edition

The Power Line Fire Prevention Field Guide outlines procedures to minimize the risk of wildfire caused by electrical power lines and equipment. CAL FIRE, the state's three investor-owned utilities (PG&E, SCE, and San Diego Gas and Electric), and other California electric utilities have mutually developed the comprehensive field guide for their personnel. In addition to safety of the

public, the guide details fire hazard reduction maintenance procedures for the safety of conductors and certain hardware.

California Department of Forestry and Fire Protection

CAL FIRE is tasked with reducing wildfire-related impacts and enhancing California's resources. CAL FIRE responds to all types of emergencies, including wildland fires and residential/commercial structure fires. In addition, CAL FIRE is responsible for the protection of approximately 31 million acres of private land within the state and, at the local level, is responsible for inspecting defensible space around private residences. Under Title 14 of the California Code of Regulations (CCR), CAL FIRE has the primary responsibility for implementing wildfire planning and protection for SRAs. SRAs primarily consist of rural, forested, or brush-covered lands and generally do not include incorporated cities or federal owned lands. In contrast, LRAs refer to lands not designated as SRAs; these areas fall under the jurisdiction of incorporated cities, counties, or designated special districts. In Kern County, these areas include all incorporated cities, urban regions, agricultural lands, and portions of the desert. Protection is typically provided by city fire departments, fire protection districts, counties, and by CAL FIRE under contract.

CAL FIRE is responsible for enforcing State of California fire safety codes included in the California Code of Regulations and the California Public Resources Code. Sections 4292 and 4296 of the California Public Resources Code identify minimum clearance requirements required around utility poles.

CAL FIRE also inspects utility facilities and makes recommendations regarding improvements in facility design and infrastructure. Joint inspections of facilities by CAL FIRE and the utility owner are recommended by CAL FIRE so that each entity may assess the current state of the facility and successfully implement fire prevention techniques and policies. Violations of state fire codes discovered during inspections are required to be brought into compliance with the established codes. If a CAL FIRE investigation reveals that a wildfire occurred as a result of a violation of a law or negligence, the responsible party could face criminal and/or misdemeanor charges. For cases where a violation of a law or negligence has occurred, CAL FIRE has established the Civil Cost Recovery Program, which requires parties liable for wildfires to pay for wildfire-related damages.

Finally, as described above, CAL FIRE maps FHSZs based on fuel loading, slope, fire history, weather, and other relevant factors as directed by California Public Resources Code, Sections 4201 through 4204, and California Government Code Sections 51175 through 51189. CAL FIRE uses an extension of the SRA Fire Hazard Severity Zone model as the basis for evaluating fire hazard in LRAs. The LRA hazard rating reflects best science available and data to evaluate potential fire behavior. This model considered many factors such as fire history, vegetation, flame length, blowing embers, terrain, weather, and proximity to wildland.

Mutual Aid Agreements

The California Disaster and Civil Defense Master Mutual Aid Agreement, as provided by the California Emergency Services Act, provides statewide mutual aid between and among local jurisdictions and the state. The statewide mutual aid system exists to ensure that adequate resources, facilities, and other supports are provided to jurisdictions whenever resources prove to be inadequate for a given situation. Each jurisdiction controls its own personnel and facilities but can give and receive help whenever needed. The KCFD participates in 14 Mutual Aid Agreements with neighboring fire suppression organizations (KCFD 2025). In some instances, the closest available resource may come from another fire department.

2022 California Fire Code

The 2022 California Fire Code (CFC) (Title 24, Part 9 of the California Code of Regulations) establishes regulations to safeguard against the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The CFC also establishes requirements intended to provide safety for, and assistance to, firefighters and emergency responders during emergency operations. The provisions of the CFC apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure throughout California. Chapter 6 (Building Services and Systems) of the CFC focuses on building systems and services as they relate to potential safety hazards and when and how they should be installed. Building services and systems are addressed and include emergency and standby power systems, electrical equipment, wiring and hazards, and stationary storage battery systems. Chapter 33 (Fire Safety During Construction and Demolition) of the CFC outlines general fire safety precautions to maintain required levels of fire protection, limit fire spread, establish the appropriate operation of equipment and promote prompt response to fire emergencies. The CFC includes regulations regarding fire-resistance-rated construction; fire protection systems, such as alarm and sprinkler systems (for inhabited structures); fire service features, such as fire apparatus access roads; means of egress; fire safety during construction and demolition; and wildland-urban interface areas.

2022 California Building Code, Chapter 7A

Chapter 7 of the 2022 California Building Code details the materials, systems, and assemblies used in the exterior design and construction of new buildings located within a Wildland-Urban Interface Fire Area. A Wildland-Urban Interface Area is defined in Section 702A as a geographical area identified by the state as a "Fire Hazard Severity Zone," in accordance with the Public Resources Code Sections 4201 through 4204 and Government Code Sections 51175 through 51189, or other areas designated by the enforcing agency to be at a significant risk from wildfires. The building code details the materials, systems, and assemblies used for structural fire resistance and fire-resistance-rated construction separation of adjacent spaces to safeguard against the spread of fire and smoke within a building and the spread of fire to or from buildings.

California Senate Bill 38

California Senate Bill (SB) 38 requires battery storage facilities to establish safety and communication protocols for adequate emergency response and is implemented through California Public Utilities Code Section 761.3. It requires battery storage facilities to develop an emergency response plan in coordination that covers the premises of the battery energy storage system (BESS) facility with local emergency response management agencies and first responders and to establish notification and communication procedures.

Local

Kern County General Plan

The Project site is located within the Kern County General Plan (KCGP) area; therefore, it is subject to applicable policies and measures of the KCGP. The Safety Element of the KCGP include goals, policies, and implementation measures related to wildfire that apply to the proposed Project, as described below.

Chapter 4. Safety Element

4.1 Introduction

Goals

Goal 1. Minimize injuries and loss of life and reduce property damage.

4.6. Wildland and Urban Fire

Policies

Policy 1. Require discretionary projects to assess impacts on emergency services and facilities.

Policy 4. Ensure that new development of properties have sufficient access for emergency vehicles and for the evacuation of residents.

Policy 6. All discretionary projects shall comply with the adopted Fire Code and the requirements of the Fire Department.

Implementation Measure

Measure A. Require that all development comply with the requirements of the Kern County Fire Department or other appropriate agency regarding access, fire flows, and fire protection facilities.

Kern County Specific Plans

Kern County (County) has adopted 24 Specific Plans. These Specific Plans amplify the goals and policies of the KCGP and are, therefore, consistent with them. A portion of the Project site (Site 1) is located within the jurisdictional boundary of the Buttonwillow Community Development Plan

(Specific Plan). There are no requirements related to wildfire set forth in the Buttonwillow Specific Plan.

Kern County Fire Department Strategic Fire Plan

Within California, each CAL FIRE Unit and Contract County varies greatly in size, terrain, and fire suppression strategies. For this reason, individual Unit Strategic Fire Plans are completed annually to address how each CAL FIRE Unit and Contract County is achieving the goals and objectives of the 2018 Strategic Fire Plan. As a Contract County, the Kern County Fire Department Strategic Fire Plan adopted by KCFD in 2025 documents the assessment of the wildland fire situation throughout the SRA within the County.

Kern County Fire Code

Chapter 17.32 of the Kern County Municipal Code details the Kern County Fire Code, which is an adoption of the 2022 CFC with some amendments. The purpose of the County's Fire Code is to regulate the safeguarding of life, property, and public welfare to a reasonable degree from the hazards of fire, hazardous materials release, or explosion due to handling of dangerous and hazardous materials; conditions hazardous to life or property in the occupancy and use of buildings and premises; the operation, installation, construction, and location of attendant equipment; the installation and maintenance of adequate means of egress; and providing for the issuance of permits and collection of fees.

Kern County Multi-Jurisdiction Hazard Mitigation Plan

The purpose of the multi-hazard mitigation plan (MHMP) is to reduce or eliminate the long-term risk to people and property from natural hazards and their effects in the county. The 2019-20 Update to the MHMP assists Kern County with vulnerabilities from future disasters. Hazard mitigation is the use of sustained, long-term actions to reduce the loss of life, personal injury, and property damage that can result from a disaster. The MHMP includes the County and the incorporated municipalities of Arvin, Bakersfield, California City, Delano, Maricopa, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco. The MHMP also addresses areas of land controlled by federal and state land management agencies, including the California Department of Forestry and Fire Protection, Bureau of Land Management, and Bureau of Reclamation. While other levels of government have jurisdiction in these parts of the county, the MHMP can be used to document and coordinate mitigation efforts among federal, State, and local jurisdictions. This MHMP also covers 49 special districts that include school, airport, community service, water, recreation and park, sanitation, and other districts.

The MHMP also defines and discusses local conditions relating to wildfires. Applicable plans and policies described in the MHMP include Healthy Forests Restoration Act (2003), CFC (2016), California Building Standards Code (2019), Hazardous Environmental Conditions (Kern County Code Section 17.32), and Required Operational Permits (Kern County Code Section 17.32). Historic wildfire events along with recent large wildfire events within the county are also documented. The MHMP also addresses the severity and extent of wildfire hazards, warning time,

secondary hazards, and climate change impacts, as well as vulnerabilities to wildfire in terms of population, property, and infrastructure.

Kern County Emergency Operations Plan

The Kern County Emergency Operations Plan establishes emergency management organization and assigns functions and tasks consistent with California's Standardized Emergency Management System and the National Incident Management System. The purpose of the Kern County Emergency Operations Plan is to preserve life and property through planning, preparedness measures, and training (Kern County 2022).

Fire Prevention Standard No. 1204-2 Solar Panels

The KCFD Fire Prevention Division adopted Standard No. 1204-2 Solar Panels Ground Mounted (Commercial) on May 25, 2023 (KCFD 2023). The standard is implemented in accordance with the 2022 CFC and Kern County Ordinance and is an official interpretation of the Kern County Fire Marshal's Office. The standard outlines installation requirements for commercial ground-mounted photovoltaic solar panels. Requirements state that for systems of one MW or larger, fire protection water shall be provided for the ground-mounted solar systems, which is determined by the structure size and location in wildland areas. Vegetation shall have a minimum clearance of 10 feet around the proposed Project perimeter and shall be maintained to a height of 6 inches or less. The standards also include perimeter and internal road widths for fire apparatus, including approved materials for driving surface and minimum separations between solar panel array blocks. The proposed Project involves mounting systems for the modules on steel support posts that would be pile-driven into the ground and, therefore, would comply with the ground-mounted requirements of this fire prevention standard. Ground-mounted solar panel requirements of this standard include water supply, clearance and combustibles, stationary storage battery/ESSs, clean agent system permits, fire extinguisher placement, and emergency vehicle access (KCFD 2023).

4.18.4 Impacts and Mitigation Measures

Methodology

Wildfire impacts are considered on the basis of (1) off-site wildland fires that could result due to the construction and/or operation of the proposed Project, and (2) on-site generated combustion that could affect surrounding areas. The proposed Project's potential impacts associated with wildfires have been evaluated using a variety of resources, including CAL FIRE maps showing FHSZs, CAL FIRE's Fire and Resource Assessment Program, and fire history and vegetation data from the Biological Resources Technical Report (Dudek 2025), project location maps, and project characteristics. Using the aforementioned resources and professional judgment, impacts were analyzed according to the California Environmental Quality Act (CEQA) significance criteria described below.

Thresholds of Significance

The Kern County CEQA Implementation Document and Kern County Environmental Checklist identify the following criteria, as established in Appendix G of the CEQA Guidelines, to determine whether a project could potentially have a significant impact with respect to wildfires. A project would have a significant impact with respect to wildfires if it would be located in or near SRAs or lands classified as very high fire hazard severity zones, and if that project would:

- Substantially impair an adopted emergency response plan or emergency evacuation plan.
- Exacerbate wildfire risks, due to slope, prevailing winds, or other factors, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.
- Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.
- Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

Project Impacts

Impact 4.18-1: Would the Project substantially impair an adopted emergency response plan or emergency evacuation plan?

Depending on the specific area within the Project site (Sites 1-6 and Site 8) requiring access, Wasco Way, Merced Avenue, Lerdo Highway, Rowlee Road, Wildwood Road, Buttonwillow Drive, 7th Standard Road, Snow Road, State Route 58, and or Sullivan Road, would provide access to the Project site. The Project site is located along the I-5 at Sites 1 and 4, which would provide adequate access in the event of an emergency. All access on the existing road networks would be maintained throughout construction, and all necessary encroachment permits for work within the road right-of-way would be obtained, as described in Section 4.15, *Transportation*. Therefore, the development of the proposed Project would not physically interfere with emergency vehicle access or personnel evacuation from the site.

It is estimated that an average of up to 800 workers per day with up to 1,334 workers during peak construction periods would be required during construction of the proposed Project. Operation of the proposed Project would involve up to 20 full-time equivalent (FTE) personnel who would commute to the site. As described in Section 4.15, *Transportation*, of this Draft EIR, increased Project-related traffic would not cause a significant increase in congestion, and or significantly worsen the existing service levels at intersections on area roads. Nevertheless, given the number of construction workers expected to be present at the Project site, construction activities have the potential to interfere with existing plans and result in a potentially significant impact. As described in Section 4.15, *Transportation*, Mitigation Measure MM 4.15-2 would require development of a Construction Traffic Control Plan, which would ensure that access for emergency vehicles is

maintained and provides methods for coordinating vehicle trips. Therefore, Project-related traffic would not affect emergency access to the Project site or any other surrounding location. The proposed Project would not require closures of public roads, which could inhibit access by emergency vehicles. Controlled access gates would be maintained at the main entrances to the Project site. Access to the Project site would be provided to off-site emergency response teams that respond in the event of an "after-hours" emergency. Enclosure gates would be manually operated with a key provided in an identified key box location. Additionally, the proposed Project would comply with applicable regulations, including the 2022 CFC, the Kern County Fire Code, and Fire Prevention Standard No. 503-507 for Solar Panels.

The Project site is in an area with limited population with minimal native vegetation on-site due to agricultural activities and development. In compliance with applicable Fire Code and Building Code requirements, construction managers and personnel would be trained in fire prevention and emergency response. The Project site is not located along an identified emergency evacuation route and is not identified in any adopted emergency evacuation plan, including the Kern County Emergency Operations Plan or Multi-Jurisdiction Hazard Mitigation Plan. Fire suppression equipment specific to construction would be maintained on-site. Additionally, project construction and operation would comply with applicable existing codes and ordinances related to the maintenance of mechanical equipment, handling and storage of flammable materials, and cleanup of spills of flammable materials.

For these reasons, construction and operation of the proposed Project would have a less than significant impact on emergency access. Therefore, due to the absence of any material changes to the road network and the relatively small number of employees that would be part of ongoing project operations, the potential impacts related to emergency response and evacuation plans would be less than significant.

PG&E Midway (Midway) Substation Upgrades

The proposed Project includes enlarging the Midway Substation's 500-kilovolt (kV) yard within the PG&E owned Midway Substation property boundaries. The Midway Substation parcels comprise approximately 255 acres of which approximately 38.6 acres will be subject to construction activities as part of the proposed Project. PG&E may install two four-inch fiber-optic line conduits and a four-inch grounding circuit to the west of the Buttonbush gen-tie route to facilitate communication between the Midway Substation and the Point of Change of Ownership, approximately 0.25 miles northwest of the Midway Substation property. Other activities include: installing up to nine, 67.5 cubic feet underground substructure vaults along the conduit trenches; removing an existing precast security wall at the northwest side of the Midway Substation and replacing it with a new 12-foot wall; grading of the connection area; installing approximately one 550 kV, 3,000A, 63kA high-voltage circuit breaker; equipment foundations and concrete trenches; equipment cabinets; bus structures; communication lines; conduits; pull boxes; and concrete-encased conduit duct banks inside of the substation as required.

In addition to substation modifications, the proposed Project includes installing up to 2,000 feet of new 500 kV single-circuit transmission line, creating a new, direct tie from the Midway

Substation to the Point of Change of Ownership for the proposed Project. Up to four approximately 175-foot-tall lattice steel towers or tubular steel poles (TSPs) would support the proposed transmission line. Concrete foundations would support the towers based on the designed loads. For a detailed description of the Midway Substation upgrades see Chapter 3.0, *Project Description.*

Proposed Project construction, grading, and excavation activities within the Midway Substation parcels have the potential to impede access that could result in the impairment of an adopted emergency response or evacuation plan. To avoid potential impacts to emergency response, PG&E should implement the Construction Traffic Control Plan, as required by Mitigation Measure MM 4.15-2, Section 4.15, *Transportation,* designed to prevent physical interference with emergency vehicle access. Additionally, the Midway Substation is not located within an identified evacuation route or subject to an evacuation plan and, therefore, the Midway Substation upgrades would not impair such plans

Summary

With implementation of Mitigation Measure MM 4.15-2 (Section 4.15, *Transportation*), proposed Project impacts regarding emergency response and evacuation would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.15-2. (See Section 4.15, *Transportation*, for full mitigation measure text.)

Level of Significance after Mitigation

Less than significant.

Impact 4.18-2: Would the Project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Slope and wind speed can influence the spread of fires. In general, slopes exceeding 20% can exacerbate the spread of wildfire (Fire Rescue Safety Australia 2025; Fire Safe Marin 2025). As previously described, the Project site has elevations ranging from approximately 245 feet above mean sea level in the northwest to approximately 320 feet above mean sea level in the southeast with slopes of less than one percent, with some locations where slopes reach roughly three percent (Appendix I.1).

As described above, the flat terrain would not contribute to fire spread, resulting in fires that are driven by vegetation and wind. As stated previously, the Project site is dominated by agricultural production, which would be removed and cleared during construction of the proposed Project. Wind speed in the area ranges from 4.8 mph to 6.7 mph, typically prevailing from the west. A small portion of Site 8 is located within a Moderate FHSZ, and the entire Project site is not located in or near a High or Very High FHSZ. The nearest High FHSZ is located approximately 7.75 miles

southwest of the Project site. Therefore, it is unlikely that the spread of wildfire would be exacerbated due to project terrain, vegetation, and/or wind.

Construction

The proposed Project does not include permanent occupancy, though personnel would occupy the Project site during construction. Construction activities would temporarily introduce ignition sources due to the use of vehicles, heavy machinery, and spark or heat-generating tools and equipment. The removal of agricultural production would reduce the availability of vegetative fuels, however, without a revegetation plan, new vegetation could serve as fuels for ignition. Although remaining vegetative fuels would be less than what exists under existing conditions, they have the potential to be ignited which is a potentially significant impact. Therefore, the proposed Project would be subject to Mitigation Measure MM 4.1-4, thereby requiring the Project proponent to prepare and submit a Landscape Revegetation and Restoration Plan for the Project site to the Kern County Planning and Natural Resources Department that identifies measures and standards for revegetation of the Project site. Additionally, the proposed Project would be subject to the Kern County Fire Code that includes by reference the requirements of the 2022 CFC and 2021 IFC, and which would require consultation with the KCFD to ensure all fire safety requirements are met. The solar panel array would follow the regulatory standards defined in Kern County Fire Prevention Standard No. 1204-2 that outlines installation requirements for photovoltaic ground-mounted and solar panels and necessary clearance of combustibles. The Project proponent would be required to maintain a minimum vegetative clearance of 10 feet for all weeds and combustibles around the proposed Project's perimeter, and all vegetation under arrays would be maintained so that it does not exceed 6" in height. The proposed Project also would be subject to Chapter 33 of the CFC, which outlines standards for fire safety during construction activities. As the proposed Project involves the installation of energy systems, it must comply with CFC Chapter 12 Energy Systems. Additionally, the proposed Project would involve the use of hazardous materials during construction in small quantities. In accordance with the Hazardous Materials Release Response Plans and Inventory Act, and required by Mitigation Measure 4.9-1 (Section 4.9, *Hazards and Hazardous Materials*) a hazardous materials business plan would be provided to the Kern County Environmental Health Services and hazardous materials used will comply with CFC Chapter 50 Hazardous Materials. During construction, the proposed Project would comply with applicable existing codes and ordinances related to the maintenance of mechanical equipment, handling and storage of flammable materials, and cleanup of spills of flammable materials detailed in the KCGP.

Operation

During the operational phase, the proposed Project would employ up to 20 FTE personnel. The proposed Project includes six locations for up to four O&M building(s) less than 3,600 sf. in size, with associated on-site parking. The O&M buildings would be steel framed, with metal siding and roof panels. Personnel would largely work in the O&M buildings monitoring the system's performance and performing system production forecasting. Plastic or steel above-ground water storage tanks would be placed on-site near the O&M building(s). The storage tank(s) near the O&M building(s) will be sized in accordance with Kern County and fire department requirements

and have the appropriate fire department connections to be used for fire suppression purposes. All roads, driveways, and parking lot entrances would be constructed in accordance with Kern County improvement standards. Parking spaces and walkways would be constructed in accordance with all California accessibility regulations. If a wildfire occurs in the area, it is anticipated that any employees occupying the site would be rapidly evacuated at the time of the event, and/or evacuated well in advance of an approaching wildfire in conformance with applicable County evacuation directives put in place.

Primary O&M activities that would occur on the Project sites during operation would consist of cleaning photovoltaic panels, monitoring electricity generation, providing site security, facility maintenance, vegetation management, road maintenance, monitoring of BESS equipment and control systems, and utility coordination. The proposed Project would include one or more BESS, which can combust or become damaged by fire and generate fumes and gases that are extremely corrosive. Dry chemical, carbon dioxide, and foam are the preferred methods for extinguishing a fire involving batteries as water is not effective in extinguishing battery fires. Class D extinguishers are used for lithium-metal fires only. The BESS would consist of remotely controlled containers and periodically be inspected for maintenance purposes. The BESS would be designed to conform with Kern County and national BESS fire standards, including the CFC and NFPA 855, would have all required Underwriters Laboratories (UL) 9540A reports, and would be certified to UL9540, if required. NFPA 855 provides mandatory installation requirements that reflect the current best practice for preventing explosions and safely containing fires. This is accomplished through standard mandatory requirements for the design, installation, commissioning, operation, maintenance, and decommissioning of BESS facilities, signage, security installations, fire detection and suppression systems, thermal runway prevention, and vegetation control and minimum setbacks from lot lines, roads, and adjacent buildings. Implementation and compliance with these design and safety regulations would ensure wildfire risk associated with the BESS would not be significant.

Power would be transmitted from the proposed substation(s) to the PG&E Midway Substation via up to 500 kV, overhead and/or underground gen-tie line(s). Gen-tie lines generally would originate from proposed development areas, cross the I-5, and route to the southern area of the Project site and then south to the existing PG&E's Midway Substation.

The proposed Project's collector lines would be located generally within or adjacent to the proposed Project site and may connect several parcels to a project substation. Both collector lines and gen-tie lines would use up to a 200-foot-wide corridor. The collector lines from the project parcel cluster to the main project substation would likely be sized at a voltage ranging from 34.5kV to 500 kV, with 34.5kV and 230 kV being likely voltages. Overhead lines would be mounted on TSPs no higher than 200 feet tall. Portions of the gen-tie line and collector lines may be undergrounded to avoid conflict with other existing infrastructure.

As described previously, fire safety measures would be implemented, including vegetation clearance to ensure that construction and operation of the project components, including the gen-tie line, are implemented per applicable fire protection and environmental, health, and safety requirements. Additionally, implementation of Mitigation Measure MM 4.1-4 would minimize

disturbances to native vegetation, where possible, and maintain native vegetation adjacent to the Project site, with native ground cover for revegetation to reduce fire risk. The proposed Project also must comply with CPUC General Order No. 95 that sets forth requirements for overhead line design, construction, and maintenance.

Decommissioning

The proposed solar equipment is estimated to have a lifespan of up to 35 years; however, the proposed Project could have a longer life expectancy if the applicant replaces and repowers certain project components. If any portion of the Project site is decommissioned, it would be converted to other uses in accordance with the applicable land use regulations in effect at that time. The decommissioning and restoration process involves removing above-ground and below-ground structures, restoring topsoil, revegetation, and seeding. Temporary erosion and sedimentation control BMPs would be used during the proposed Project's decommissioning phase. As with construction, decommissioning activities would introduce temporary ignition sources to the Project site. During decommissioning, the proposed Project would comply with applicable existing codes and ordinances related to the maintenance of mechanical equipment, handling and storage of flammable materials, and cleanup of spills of flammable materials detailed in the KCGP.

Thus, because of the existing and proposed conditions of the Project site and surroundings, the potential for wildfire on the Project site is considered low. Construction, operation, and decommissioning of the proposed Project would not substantially exacerbate the risk of wildfire. The proposed Project is not anticipated to expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire due to slope, prevailing winds, and other factors. Therefore, impacts would be less than significant.

Midway Substation Upgrades

As discussed above, the Midway Substation is located on relatively flat terrain which would not contribute to fire spread. The Midway Substation is not located in a FHSZ. However, vegetative fuels could potentially ignite during the construction, operation, and decommissioning of the proposed Project. To avoid potential impacts, PG&E should implement the Landscape Revegetation and Restoration Plan, as required by Mitigation Measure 4.1-4, Section 4.1, *Aesthetics,* designed to manage vegetation within the Project site. Additionally, the solar panel array would follow regulatory standards that outline installation requirements and necessary clearance of combustibles. Furthermore, the Midway Substation is not located within an identified evacuation route or evacuation plan. Finally, PG&E has adopted Best Management Practices (BMPs) (Appendix M) that apply to all PG&E construction projects, which include BMPs (BMP 24 through 27) that require the implementation of fire prevention measures to be implemented.

Summary

With implementation of Mitigation Measure MM 4.1-4 (Section 4.1, *Aesthetics*), proposed Project impacts regarding emergency response and evacuation would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.1-4. (See Section 4.1, *Aesthetics*, for full mitigation measure text).

Level of Significance after Mitigation

Less than significant.

Impact 4.18-3: Would the Project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

The proposed Project would involve installing PV module configurations, inverters, transformers, BESS, solar meteorological station(s), substation(s), gen-tie and collection lines, microwave/radio towers, water storage tank(s), and operations and maintenance buildings, along with other supporting infrastructure. Installation of such infrastructure has the potential to exacerbate fire risk that may result in potentially significant impacts to the environment. All new infrastructure would be installed and operated in accordance with safety standards that would reduce the risk of potential fires.

As stated above, the BESS would be remotely controlled and periodically inspected for maintenance purposes. The BESS would be designed to conform with Kern County and national BESS fire standard NFPA 855, would have all required UL 9540A reports, and would be certified to UL9540, if required.

Construction and operation traffic would access the Project site from Wasco Way, Merced Avenue, Lerdo Highway, Rowlee Road, Wildwood Road, Riverside Street, Burbank Street, Buttonwillow Drive, 7th Standard Road, Snow Road, SR-58, and Sullivan Road depending on the project site (Site 1-6 and Site 8). A new 20-foot-wide–minimum road would be installed around the perimeter of the solar arrays for the fire department and emergency vehicles. Additional internal maintenance roads would be located throughout the Project site. Internal access roads would be at least 20 feet wide and would be cleared and compacted for equipment and emergency vehicle travel and access to solar blocks. These Project site access roads would remain in place for ongoing O&M activities after construction is completed. The access points and interior driveways would be constructed in accordance with Kern County and CAL FIRE requirements and maintained to facilitate on-site circulation for emergency vehicles during all weather conditions. The proposed Project may also require redundant telecommunication connections that would consist of fiber-optic cable and/or copper telecommunication line installed above and/or below ground and attached to either existing utility lines located outside of the Project site or within new gen-tie and transmission line corridors. Below ground installations would be installed approximately 24 to 48 inches below grade. Above-ground lines would be placed below existing distribution lines or on new, adjacent wooden poles. Up to six microwave/communication towers are proposed in six locations within the proposed Project. Each microwave/communication tower consists of up to three, six-foot-high performance microwave dish(es) fixed to a steel monopole

of up to 130 feet in height. An approximately 12-feet by 20-feet equipment shelter may also be included within a fenced area.

The proposed improvements would be installed in an area that has a low potential to experience wildfire; the Project site is not located in or near a High or Very High FHSZ or within an SRA, with the nearest High FHSZ located approximately 7.75 miles southwest of the Project site. As described previously, the average wind speed in the area ranges from 4.8 mph to 6.7 mph, typically prevailing from the west. Therefore, it is unlikely that the spread of wildfire would be exacerbated due to wind. In addition, the proposed Project would be subject to fuel reduction maintenance requirements around buildings and structures to ensure there is no fuel buildup that would exacerbate a risk of fire either on-site or off-site. Construction, operation, and maintenance associated with the above-mentioned infrastructure would adhere to all federal, state, and local laws, regulations, codes, and safety standards.

The installation of the gen-tie and electrical collector system and internal/perimeter compacted native soil maintenance roads would not be placed within a high fire hazard zone. Vegetation would be cleared and restored according to the Landscape Revegetation and Restoration Plan to be prepared for the proposed Project (Mitigation Measure MM 4.1-4 in Section 4.1, *Aesthetics*). Furthermore, as described above, the Project site is located within an area that has low potential to experience wildfire and none of the proposed electrical collector system and internal/perimeter dirt maintenance roads would be located within a high fire hazard zone. In construction areas, the vegetation would be cleared as needed. As discussed in Section 4.14, *Public Services*, the Project proponent/operator would be required to develop and implement a Fire Safety Plan for the solar field that contains notification procedures and emergency fire precautions consistent with the Kern County Fire Code and by reference the 2022 CFC and 2021 IFC, during construction, operation, and decommissioning per implementation of Mitigation Measure MM 4.14-1. Implementation of this plan would ensure that potential impacts related to installation or maintenance of associated infrastructure is reduced and, thus, impacts would be less than significant. With mitigation implementation, the proposed Project would not result in increased fire risks that could result in temporary or ongoing impacts to the environment.

PG&E Midway Substation Upgrades

Development within the Midway Substation parcels may include installation of several fiber-optic lines, one 550 kV, 3,000A, 63kA high-voltage circuit breaker, equipment foundations and concrete trenches, communication lines, conduits, and up to 2,000 feet of new 500 kV single-circuit transmission line. The construction of such infrastructure could exacerbate fire risk, however, as discussed above, the Midway Substation is located on relatively flat terrain and is not located in a FHSZ. To avoid potential impacts, PG&E should implement the Fire Safety Plan that contains notification procedures and emergency fire precautions consistent with Kern County Fire Code, as required by Mitigation Measure 4.14, *Public Services*, designed to minimize potential impacts related to installation or maintenance of associated infrastructure. Finally, PG&E has adopted BMPs (Appendix M) that apply to all PG&E construction projects, which include BMPs (BMP 24 through 27) that require the implementation of fire prevention measures to be implemented.

Summary

With implementation of Mitigation Measures MM 4.1-4 (Section 4.1, *Aesthetics*), proposed Project impacts regarding emergency response and evacuation would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.1-4 and MM 4.14-1. (See Section 4.1, *Aesthetics*, and Section 4.14, *Public Services*, for full mitigation measure text).

Level of Significance after Mitigation

Less than significant.

Impact 4.18-4: Would the Project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Slope failures, mudflows, and landslides are common in areas where steep hillsides and embankments are present, and such conditions would be exacerbated in a post-fire environment where vegetative cover has been removed. Vegetation plays a vital role in maintaining existing drainage patterns and the stability of soils. Plant roots stabilize the soil and leaves, stems, and branches intercept and slow water, allowing it to more effectively percolate into the soil. Removal of surface vegetation reduces the ability of the soil surface to absorb rainwater and can allow for increased runoff that may include large amounts of debris and mud flows. If hydrophobic conditions exist after a fire, the rate of surface water runoff is increased since water percolation into the soil is reduced. For areas recently burned by large wildfires, the potential for surface runoff and debris flows increases.

As discussed previously, the Project site is not located in or near a High or Very High FHSZ, and no fires have occurred on the Project site. The Project site is located in a rural area, currently is used either for agricultural operations and/or consists of vacant, undisturbed land designated for agricultural use, and is surrounded largely by agriculturally zoned parcels with farm and/or rural residential uses. As such, the Project site and surroundings do not consist of dense, urban development and populations that could be exposed to significant risks from post wildfire conditions.

During construction, the removal of existing vegetation could contribute to soil loss and erosion. Earthmoving and construction activities would loosen soil and result in the removal of existing vegetation (El Cerrito 2025). Development of the proposed Project would alter existing on-site drainage patterns and flow paths compared to existing conditions due to recontouring of the Project site and the introduction of new impervious surfaces. The proposed Project would involve grading to be balanced within an approximately 11,983-acre site that has an average slope of less than one percent, and would reduce slopes in specific areas of the Project site to construct building pads and install certain infrastructure (for example, BESS).

Furthermore, the proposed Project would require implementation of a Stormwater Pollution Prevention Plan (SWPPP) that would include erosion and sediment control BMPs during construction, thereby reducing the potential of erosion and siltation during construction and would control potential flooding events that could occur during construction and/or following a fire event on the subject property. Additionally, as discussed in Section 4.10, *Hydrology and Water Quality*, Kern County requires development of a drainage plan with the site development grading permit, which will manage stormwater at the solar field and reduce the risk for off-site impacts due to erosion and impacts regarding water quality, as implemented by Mitigation Measure MM 4.10-1. Design measures are intended to minimize or manage flow concentration and changes in flow depth or velocity so as to minimize erosion, sedimentation, and flooding on- or off-site. One element of the drainage plan is potential retention basin(s) and/or detention ponds(s) to manage facility stormwater. Therefore, the proposed grading of the site and installation of impervious surfaces are unlikely to create any unusual and/or substantial drainage or slope stability hazards following a fire and/or during a substantial rainfall event.

Thus, while the proposed Project would introduce new development on-site, the new development would not be located in an area of high wildfire risk, due to the existence of low density rural development, relatively flat topography of the site and surrounding area, general lack of dense vegetation, and lack of history of wildfire, thereby resulting in low potential for the proposed Project to create substantial risks associated with post-fire hazards.

PG&E Midway Substation Upgrades

As discussed above, the Midway Substation is located on flat terrain and is not located in or near a High or Very High FHSZ. However, the proposed Project construction, grading, and excavation activities within the Midway Substation parcels have the potential to alter drainage patterns that could result in downstream flooding (for example, flooding with the Community of Buttonwillow). To avoid potential impacts, PG&E should implement the SWPPP that would include erosion and sediment control BMPs during construction. Additionally, PG&E should implement the drainage plan which will manage stormwater, as required by Mitigation Measure MM 4.10-1. Finally, PG&E has adopted BMPs (Appendix M) that apply to all PG&E construction projects, which include BMPs (BMP 8 through 12) that include stormwater erosion control methods.

Summary

With implementation of Mitigation Measures MM 4.10-1 (Section 4.10, *Hydrology and Water Quality*), proposed Project impacts regarding emergency response and evacuation would be less than significant.

Mitigation Measures

Implement Mitigation Measure MM 4.10-1 (See Section 4.10, *Hydrology and Water Quality*, for full mitigation measure text).

Level of Significance after Mitigation

Less than significant.

4.18.5 Cumulative Setting, Impacts, and Mitigation Measures

The geographic scope for the analysis of cumulative wildfire impacts is a six-mile buffer around the Project site, as wildfire behavior is largely dependent on factors that are non-localized such as wind patterns, topography, climatic conditions, humidity, and available fuels such as dry vegetation. Refer to **Table 3-4:** *Cumulative Projects List*, for a list of projects currently planned or approved within the cumulative study area that may have the potential to contribute to a significant cumulative impact with regard to wildfire.

With regard to impairment of an adopted emergency response plan or emergency evacuation plan, all of the related projects would be required to demonstrate adequate emergency access in accordance with applicable County Fire Code and Building Code requirements and prior to the issuance of a building permit. As previously mentioned, the Project site is not classified as being within a High or Very High FHSZ or SRA. The Project site is located in a relatively flat, agricultural region of Kern County. The nearest High FHSZ is located approximately 7.75 miles southwest of the Project site. As concluded above, the proposed Project would result in a less than significant impact in regard to impairment of an adopted emergency response or evacuation plan.

Similar to the proposed Project, related projects would be required to determine whether they are classified as being within a high fire hazard severity zone, identified within an emergency evacuation route or within an adopted emergency evacuation plan, and whether they meet applicable Fire and Building Code requirements. Therefore, the proposed Project and related projects are expected to result in a less than significant cumulative impact to an adopted emergency response plan or emergency evacuation plan.

Regarding cumulative impacts related to exposure of project occupants to pollutant concentrations from a wildfire, neither the proposed Project nor related projects in the area are within a High FHSZ. Similar to the proposed Project, all related projects would be required to implement building and landscape design features in accordance with the Fire Code and Building Code to reduce wildfire risk and exposure of occupants to pollutant concentrations from a wildfire, as demonstrated by implementation of Mitigation Measure MM 4.1-4 described above, which would require the proposed Project to prepare and submit a Landscape Revegetation and Restoration Plan for the Project site to the Kern County Planning and Natural Resources Department. Adherence to the Fire Code and Building Code requirements would minimize potential impacts related to exposure to, and the uncontrolled spread of, wildfire. As concluded in the discussion of project impacts above, the proposed Project would have a less than significant impact related to exposure of project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Therefore, the proposed Project and related projects are expected to result in a less than significant cumulative impact related to exposure of project occupants to pollutant concentrations from a wildfire.

Related projects may require associated infrastructure such as roads, fuel breaks, and power lines that could exacerbate fire risk or that may result in temporary or ongoing impacts to the

environment. The County would review these projects for land use and zoning consistency and compliance with applicable requirements and analyze them for environmental impacts. The placement of infrastructure would adhere to all fire codes to minimize the potential fire risk such as siting and design. The proposed Project would involve installing photovoltaic module configurations, transformers, BESS, solar meteorological station(s), substation(s), gen-tie lines, microwave/radio towers, water storage tank(s), and operations and maintenance buildings. All new infrastructure would be installed and operated in accordance with safety standards that would reduce the risk of potential fires. Furthermore, per implementation of Mitigation Measure MM 4.14-1, the Project proponent/operator would be required to develop and implement a Fire Safety Plan that contains notification procedures and emergency fire precautions consistent with the Kern County Fire Code and, by reference, the 2022 CFC and 2021 IFC for the construction, operation, and decommissioning of the solar field. All related projects would also be required to implement Fire Safety Plans. Similarly, all projects included in the analysis of cumulative impacts would be required to mitigate any significant impacts to public services, utilities, and transportation, similar to the proposed Project. As described above, the proposed Project would result in a less than significant impact related to the exacerbation of fire risk associated with the installation or maintenance of project infrastructure. Nevertheless, given the location in a rural area and limited infrastructure, the proposed Project and related projects have the potential to result in a cumulative impact related to the installation or maintenance of associated infrastructure and, thus, would result in a significant and unavoidable cumulative impact.

Some related projects could be proposed in areas that could expose people or structures to risks from downslope or downstream flooding or landslides as a result of post-fire slope instability. All projects would be required to adhere to the County's zoning and land use designations and codes, state and local fire codes, and regulations associated with drainage and site stability. These regulations, policies, and codes would reduce the potential for exposing people or structures to risks from downslope or downstream flooding or landslides as a result of post-fire slope instability. Each project would require site-specific hydrology and drainage studies for effective drainage design. As described in the discussion of project impacts above, with the implementation of Mitigation Measure MM 4.10-1, the proposed Project would not expose people or structures to significant risks due to post-fire slope instability or drainage changes and would have a less than significant impact. The area is relatively flat overall and does not contain steep slopes. Thus, cumulative projects would not be located in areas where post-fire slope instability is a concern. Further, all cumulative projects that would disturb more than one (1) acre of ground would require conformance with the requirements of the National Pollutant Discharge Elimination System General Construction Permit Program through the preparation of a SWPPP, which would include erosion and sediment control BMPs during construction, thereby reducing the potential of erosion and siltation during construction and would control potential flooding events that could occur during construction. Nevertheless, given the location is subject to high wind speeds, and is a rural area with limited infrastructure, the proposed Project and related projects have the potential to result in a cumulative impact related to exposing people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes and, thus, would result in a significant and unavoidable cumulative impact.

PG&E Midway Substation Upgrades

As described above in Impacts 4.18-1 through 4.18-4, the proposed Project includes enlarging the Midway Substation's 500-kV yard within the Midway Substation property boundaries which will entail the installation of new facilities (for example, several fiber-optic lines, circuit breakers, equipment cabinets, replacement of an existing wall, and transmission lines) to interconnect the proposed PV solar facilities with the Midway Substation. Construction, grading, and excavation activities will be required for the installation of these facilities. Therefore, PG&E should implement Mitigation Measures MM 4.1-4, MM 4.10-1, and MM 4.14-1 (Section 4.1, *Aesthetics*, Section 4.10, *Hydrology and Water Quality*, and Section 4.14, *Public Services*) to avoid and/or mitigate significant impacts regarding emergency response, wildfire risk, exacerbated risk from installation of infrastructure, and exposure to risk from drainage changes. Further, PG&E would implement BMPs (BMP 24 through 27) that require the implementation of wildfire prevention practices. PG&E would also implement BMPs 8 through 12 to reduce stormwater erosion and drainage changes that could expose people or structures to downstream flooding.

Summary

With implementation of Mitigation Measures MM 4.1-4, MM 4.10-1, and MM 4.14-1 (Section 4.1, *Aesthetics*, Section 4.10, *Hydrology and Water Quality*, and Section 4.14, *Public Services*), proposed Project impacts would contribute to a cumulative impact due to the siting of the proposed Project in a rural area with limited infrastructure.

Mitigation Measures

Implement Mitigation Measures MM 4.1-4, MM 4.10-1, and MM 4.14-1. (See Section 4.1, *Aesthetics*, Section 4.10, *Hydrology and Water Quality*, and Section 4.14, *Public Services*, for full mitigation measure text).

Level of Significance after Mitigation

Cumulative impacts related to the installation or maintenance of associated infrastructure would be significant and unavoidable.

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Chapter 5

Consequences of Project Implementation

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Chapter5
Consequences of Project Implementation

5.1 Environmental Effects Found to Be Less Than Significant

According to Section 15128 of the California Environmental Quality Act (CEQA) Guidelines, an Environmental Impact Report (EIR) must "contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR."

Kern County has engaged the public in the scoping of the environmental document. Comments received during scoping have been considered in the process of identifying issue areas that should receive attention in the EIR. The content of this Draft EIR for the proposed Buttonbush Solar and Storage Project (proposed Project) was established based on the Notice of Preparation/Initial Study (NOP/IS) located in Appendix A.1. Based on the findings of the NOP/IS and the results of the scoping process, Kern County determined that this Draft EIR must include a detailed analysis of all environmental issues identified in Appendix G of the CEQA Guidelines, except for Population and Housing and Recreation.

Population and Housing and Recreation were not evaluated in this Draft EIR due to the following. The proposed Project would have temporary workers traveling to the Project site during construction. It is estimated that an average of up to 800 workers per day with up to 1,334 workers during peak construction periods would be required during construction of the proposed Project, which includes the construction workers required for the Pacific Gas & Electric Midway Station upgrades. The entire construction process is anticipated to take up to five years and, therefore, Project-generated workers would only be in the local area on a temporary basis. Construction workers are expected to travel to the site from various local communities and locations throughout Southern California, and few, if any, workers are expected to relocate to the surrounding area because of these temporary jobs. If temporary housing should be necessary, it is expected that accommodations (that is, extended stay hotels, apartments, RV parks, and homes for rent or sale) would be available in the nearby cities and communities of Bakersfield, Buttonwillow, Shafter, and/or Wasco. Therefore, the proposed Project is not anticipated to directly or indirectly induce the development of any new housing or businesses within the local communities. Once operational, the photovoltaic (PV) solar facility and associated infrastructure would require up to 20 full-time equivalent (FTE) employees responsible for maintenance and other activities related to ongoing operations. Twenty new residents would increase the population of Kern County by approximately 0.00002% (California Department of Finance 2025) and, consequently, it is anticipated that the local housing stock would be adequate to accommodate operations personnel, should they relocate to the area, without requiring the need for the construction of new housing. In addition, even if the maintenance/monitoring employees were hired from out of the area and relocated to Kern County,

the addition of any such families to the Project area would not result in a substantial increase in the number of users at local parks or recreational facilities. Therefore, no further analysis of environmental impacts regarding Population and Housing and Recreation is warranted.

For all other resource areas, this Draft EIR contains a comprehensive analysis of potential environmental impacts. As described in detail in the applicable sections of Chapter 4, the direct, indirect, and cumulative impacts associated with the proposed Project would have less than significant impacts, or could be reduced to less than significant levels with mitigation measures for the following issue areas:

- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Public Services
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems

5.2 Significant Environmental Effects That Cannot Be Avoided

Section 15126.2(b) of the CEQA Guidelines requires EIRs to describe any significant impacts, including those that can be mitigated but not reduced to less than significant levels. Potential environmental effects of the proposed Project and proposed mitigation measures are discussed in the applicable sections of Chapter 4 of this Draft EIR.

After further study and environmental review, as provided in this Draft EIR, it was determined that the proposed Project would result in Project-level and cumulative impacts regarding several environmental topics. According to Section 15355 of the CEQA Guidelines, the term cumulative impacts "refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Individual effects that may contribute to a cumulative impact may result from a single project or a number of separate projects. Individually, the impacts of a project may be relatively minor, but when considered along with impacts of other closely related or nearby projects, including newly proposed projects, the effects could be cumulatively considerable.

As shown in **Table 5-1:** *Summary of Significant and Unavoidable Impacts of the Proposed Project*, impacts involving the following areas would be significant and unavoidable, even with the incorporation of mitigation measures to the greatest extent feasible.

Table 5-1: Summary of Significant and Unavoidable Impacts of the Proposed Project

Resources	Project Impacts	Cumulative Impacts
Aesthetics	The introduction of solar facilities and associated infrastructure would create a visual contrast to the agricultural landscape and would be noticeable to local viewers. Across 11,983 acres, the presence of on-site substations, O&M buildings, microwave towers, BESS, and gen-tie line infrastructure would introduce new industrial elements that would obscure the open valley landscape and ultimately degrade public view of the site and surroundings. Even with Mitigation Measures MM 4.1-1 through MM 4.1-7, impacts would be **significant and unavoidable**.	The proposed Project, in combination with other existing or reasonably foreseeable projects, could result in cumulative impacts regarding visual character and public views. Even with mitigation, the proposed Project would still adversely affect the visual quality and public views from the installation of solar arrays and associated infrastructure across 11,983 acres. The proposed Project's contribution to cumulative impacts, when combined with other known and unknown projects, are **cumulatively significant and unavoidable**. All reasonable and feasible mitigation measures have been evaluated and included.
Agricultural Resources	The proposed Project would result in the conversion of approximately 10,582 acres of Important Farmland and agriculturally zoned land to non-agricultural uses. The proposed Project would also require the cancellation of Farmland Security Zone and WALUCs on approximately 10,689 acres. There are no feasible mitigation measures available to reduce impacts related to the conversion of Important Farmland or the cancellation of Farmland Security Zone and WALUCs. Therefore, impacts would be **significant and unavoidable**.	The proposed Project, in combination with other existing or reasonably foreseeable projects, could result in cumulative impacts on agricultural resources. The conversion of approximately 10,582 acres of Important Farmland and agriculturally zoned land and the cancellation of Farmland Security Zone and WALUCs on approximately 10,689 acres, when combined with other known and unknown projects, would contribute to cumulatively **significant and unavoidable** impacts regarding agriculture. There are no feasible mitigation measures available to reduce such impacts.
Air Quality	There would be no significant and unavoidable proposed Project impacts. Given that air quality impacts are evaluated on a regional scale and accounts for the proposed Project's impacts in combination with those of other planned and probable future sources of air emissions, impacts are inherently cumulative.	The proposed Project, in combination with other existing or reasonably foreseeable projects, could result in cumulative impacts regarding air quality. Although the estimated Project-level emissions are below the SJVAPCD's significance thresholds with mitigation, when considered with other projects within 6 miles and situated in the same air basin, construction-related emissions would be cumulatively considerable. Even with mitigation, construction-related impacts would remain **cumulatively significant and unavoidable**. All reasonable and feasible mitigation measures have been evaluated and included.

Table 5-1: Summary of Significant and Unavoidable Impacts of the Proposed Project

Resources	Project Impacts	Cumulative Impacts
Biological Resources	There would be no significant and unavoidable Project-specific impacts after mitigation.	The proposed Project, in combination with other existing or reasonably foreseeable projects, could result in cumulative impacts on biological resources. While Project-level impacts would be less than significant with mitigation, when considered with other development projects in the San Joaquin Valley, the proposed Project would make a cumulatively considerable contribution to cumulative impacts involving loss of habitat for special status species, loss of natural sensitive communities, and impediments to wildlife movement. The cumulative impacts of the proposed Project when combined with other known and unknown projects are **cumulatively significant and unavoidable**. All reasonable and feasible mitigation measures have been evaluated and included.
Mineral Resources	There would be no significant and unavoidable Project-specific impacts after mitigation.	The proposed Project, in combination with other existing or reasonably foreseeable projects, could result in cumulative impacts on mineral resources. The potential for not all mineral rights holders to reach an agreement could result in the loss of availability to minerals, which is considered a significant impact regarding mineral resources. Even with the implementation of Mitigation Measure MM 4.12-1, the proposed Project's cumulative contribution would remain **significant and unavoidable**.
Wildfire	There would be no significant and unavoidable Project-specific impacts after mitigation.	Given the location is subject to high wind speeds, and is a rural area with limited infrastructure, the proposed Project and related projects have the potential to result in a cumulative impact related to exposing people or structures to significant risks as a result of runoff, or drainage changes. Even with implementation of Mitigation Measure MM 4.1-4, MM 4.10 1, and MM 4.14-1 the proposed Project's cumulative contribution would remain **significant and unavoidable.**

Key: BESS = battery energy storage system; O&M = operation and maintenance; SJVAPCD = San Joaquin Valley Air Pollution Control District; WALUC = Williamson Act Land Use Contract

5.3 Irreversible Impacts

Section 15126.2(c) of the CEQA Guidelines defines an irreversible impact as an impact resulting from the use of nonrenewable resources during the initial and continued phases of the proposed Project. Irretrievable commitments of resources should be evaluated to ensure that such consumption is justified. Irreversible impacts can also result from damage caused by environmental accidents associated with a project.

The proposed Project would commit nonrenewable resources during Project construction. Energy resources, such as diesel and gasoline fuel, would be consumed during the use of off-road equipment and on-road vehicles, and electricity would be consumed to operate lighting and electrical equipment. The use of nonrenewable resources for Project construction would be temporary.

During Project operations, oil, gas, and other fossil fuels and nonrenewable resources would be consumed, primarily in the form of transportation fuel for Project employees. Therefore, an irreversible commitment of nonrenewable resources would occur as a result of long-term Project operations. However, assuming that those commitments occur in accordance with the adopted goals, policies, and implementation measures of the Kern County General Plan (KCGP) and Buttonwillow Community Development Plan (Specific Plan), as a matter of public policy, those commitments have been determined to be acceptable. Compliance with the KCGP and Specific Plan would ensure that any irreversible environmental changes associated with those commitments will be minimized, to the extent feasible.

5.4 Growth Inducement

The KCGP recognizes that certain forms of growth are beneficial, both economically and socially. Section 15126.2(d) of the CEQA Guidelines states that a project may have growth-inducing environmental impacts if it "…foster[s] economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment."

Growth inducement can be a result of new development that requires an increase in employment levels, removes barriers to development, or provides resources that lead to secondary growth. With respect to employment, the proposed Project would not induce substantial growth. As described above, construction staff that are not local would likely be housed in existing communities. Project operation would include up to 20 FTE personnel (or an approximately 0.00002% increase in the Kern County population) that would be responsible for site and facility maintenance activities, such as cleaning PV panels, monitoring electricity generation, providing site security, and repairing or replacing solar facility components. It is expected that some of these individuals would already reside in the area and operation of the proposed Project would not result in a substantial influx of people. Therefore, the proposed Project is not likely to induce any growth within Kern County.

Although the proposed Project would contribute to Kern County's energy supply, the development of the solar facility is in response to the increased market demand and, consequently, is unlikely to

facilitate new growth. Kern County planning documents already permit and anticipate a certain level of growth within the proposed Project area, along with a corresponding increase in energy demand. It is this anticipated growth that drives energy-production projects, not vice versa. The proposed Project would supply energy to accommodate and support existing demand and projected growth, but it would not foster substantial new growth because: (1) the additional energy would be used to ease the burdens of meeting existing energy demands within and beyond the area of the proposed Project; (2) the energy would be used to support already-projected growth; or (3) the factors affecting growth are so multifarious that any potential connection between additional energy production and growth would be too speculative and tenuous to merit extensive analysis.

5.5 Energy Conservation

To ensure that energy implications are considered in project decisions, CEQA requires that EIRs include a discussion of the potential energy impacts of proposed projects, with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy (Public Resources Code Section 21100(b)(3)). According to Appendix F of the CEQA Guidelines, the goal of conserving energy implies the wise and efficient use of energy, including: (1) decreasing overall per capita energy consumption; (2) decreasing reliance on natural gas and oil; and (3) increasing reliance on renewable energy sources.

As discussed in Section 4.6, *Energy*, Project construction would require the consumption of diesel and gasoline fuel to operate off-road equipment and on-road vehicles. Temporary electricity may be required to provide as-necessary lighting and to operate electric equipment. The amount of electricity used during construction would be minimal. Natural gas is not anticipated to be required during construction of the proposed Project. Overall, construction activities associated with the proposed Project would result in the consumption of petroleum-based fuels. However, there are no unusual Project characteristics that would necessitate the use of construction equipment or vehicles that would be less energy efficient than at comparable construction sites in other parts of the State of California. Therefore, it is expected that construction fuel consumption associated with the proposed Project would not be any more inefficient, wasteful, or unnecessary than at other construction sites in the region.

Long-term operational activities would require energy consumption in the form of electricity and gasoline and diesel fuel. Buildings would require electricity for multiple purposes, including, but not limited to, building heating and cooling, water heating, lighting, appliances, and electronics. Gasoline and diesel fuel would be used by motor vehicles traveling to and from the Project site. However, vehicle fuel efficiency standards are expected to increase pursuant to state regulatory actions; thereby, potentially decreasing the amount of petroleum required for Project operations over time. Furthermore, the proposed Project would construct a commercial-scale solar facility and battery energy storage facility that would support state efforts to increase reliance on renewable energy sources. The proposed Project would have a total combined generation capacity of up to 2 gigawatts (GW) of renewable electrical energy with a combined 2 GW battery energy storage system (BESS) capable of storing approximately 16,000 megawatt-hours of energy. Therefore, the proposed Project would provide a new renewable energy source and would not result in the inefficient, wasteful, or unnecessary consumption of energy.

Chapter 6

Alternatives

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Chapter 6
Alternatives

6.1 Introduction

The California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) describe a range of reasonable alternatives to a project or to the location of a project site that could feasibly avoid or lessen any significant environmental impacts of a project while attaining most of a project's basic objectives. An EIR also must compare and evaluate the environmental effects and comparative merits of the alternatives. This chapter also describes alternatives considered but eliminated from further consideration, including the reasons for elimination, and compares the environmental impacts of several alternatives retained with those of the proposed Buttonbush Solar and Storage Project (proposed Project).

The following are key provisions of the CEQA Guidelines relating to alternatives (Section 15126.6):

- The discussion of alternatives shall focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly.
- The No Project Alternative shall be evaluated, along with its impacts. The No Project analysis shall discuss the existing conditions at the time the notice of preparation was published, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.
- The range of alternatives required in an EIR is governed by a "rule of reason;" therefore, the EIR must evaluate only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project.
- For alternative locations, only locations that would avoid or substantially lessen any of the significant effects of the project need to be considered for inclusion in the EIR.
- An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative.

The range of feasible alternatives is selected and discussed in a manner to foster meaningful public participation and informed decision making. Among the factors that may be taken into account when addressing the feasibility of alternatives, as described in Section 15126.6(f)(1) of the CEQA Guidelines, are environmental impacts, site suitability, economic viability, availability of infrastructure, general plan consistency, regulatory limitations, jurisdictional boundaries, and

whether a project proponent could reasonably acquire, control, or otherwise have access to an alternative site. An EIR need not consider an alternative whose effects could not be reasonably identified, whose implementation is remote or speculative, or that would not achieve the basic project objectives.

Per the CEQA Guidelines, this section discusses alternatives that are capable of avoiding or substantially lessening the proposed Project's potentially significant environmental effects.

- **Section 6.2**, *Summary of Project Impacts Relevant to Evaluation of Alternatives*, summarizes the significant Project impacts relevant to this Draft EIR's evaluation of project alternatives.
- **Section 6.3**, Applicant Submitted *Project Objectives*, restates the Project proponent's project objectives.
- **Section 6.4**, *Overview of the Proposed Project*, summarizes proposed Project features.
- **Section 6.5**, *Overview of Alternatives to the Project*, provides an overview of the alternatives.
- **Section 6.6**, *Alternatives Considered and Rejected*, presents alternatives to the proposed Project that were considered but eliminated for further analysis.
- **Section 6.7**, *Alternatives to the Project*, presents alternatives fully analyzed in this Draft EIR and provides a comparison of each alternative's environmental effects to those of the proposed Project.
- **Section 6.8**, *Comparative Impacts of Project to All Alternatives*, sets forth a table that summarizes the relative impacts of all the alternatives as compared to the proposed Project.
- **Section 6.9**, *Environmentally Superior Alternative*, makes a determination about the environmentally superior alternative analyzed in this Draft EIR.

6.2 Summary of Proposed Project Impacts Relevant to Evaluation of Alternatives

Potentially significant adverse environmental impacts that would result from the proposed Project are evaluated in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*. The mitigation measures and impact conclusions are summarized in Chapter 1, *Executive Summary*, which includes a summary table of impact conclusions for all topic areas. This Draft EIR concludes that, even with the implementation of mitigation measures, the proposed Project has the potential to cause significant and unavoidable impacts in the following impact categories:

- Aesthetics and Visual Resources (project and cumulative – visual character and public views)
- Agricultural Resources (project and cumulative)
- Air Quality (cumulative, temporary construction only)
- Biological Resources (cumulative only)

- Mineral Resources (cumulative only)
- Wildfire (cumulative only)

6.2.1 Aesthetics and Visual Resources

As described in Section 4.1, *Aesthetics and Visual Resources,* the proposed Project would result in potentially significant visual impacts to the existing quality and character of the Project site and surrounding area. The introduction of the solar facility would be noticeable from local roads and Interstate 5 (I-5) by travelers along these roadways. A significant portion of the site's existing vegetation would be removed during project construction, diminishing the visibility of vegetation and the seasonal colors of crops. The visual contrast created by dark features, such as solar arrays and gen-tie line infrastructure, would be noticeable to local viewers and, in some cases, would obscure the open valley landscape. Even from a distance, solar arrays would appear as a low, horizontal band of dark color, contrasting with the lighter agricultural land that is common of the area and region as a whole. In addition to the installation of solar panels, the presence of an on-site substation, Operation and Maintenance (O&M) buildings, energy storage component, and gen-tie line infrastructure would introduce new elements in a landscape where they do not currently dominate, resulting in potentially significant aesthetic impacts.

Mitigation Measures MM 4.1-1 through MM 4.1-7 would be implemented to reduce anticipated visual quality impacts. These measures would require (1) the development of a Maintenance, Trash Abatement, and Pest Management Program to ensure the site remains free of debris and refuse; (2) installation of metal fence slats or similar view screening materials on all perimeter fencing for any portion of the solar site that is adjacent to a residence or residentially zoned parcels; (3) implementation of a color scheme and treatment plan approved by the Kern County Planning and Natural Resources Department; (4) preparation of a Landscape Revegetation and Restoration Plan that minimizes vegetation removal and incorporates the use of native seed mixes or plant species, where possible; (5) project design features that demonstrate conformity with the Kern County Dark Skies Ordinance (Chapter 19.81 of the Kern County Zoning Ordinance); (6) use of solar panels and hardware that are designed to minimize glare and spectral highlighting; and (7) use of non-reflective materials for all onsite buildings related to O&M facilities. However, due to the substantial project footprint of 11,983 acres, the conversion of existing vegetation to solar facilities would still noticeably alter the visual character of the area and affect views available to travelers from public vantage points. As a result, impacts on visual resources would remain significant and unavoidable.

Furthermore, as described in Section 4.1.5, *Cumulative Setting, Impacts, and Mitigation Measures,* of this Draft EIR, the proposed Project—when considered in conjunction with other planned and approved projects—is anticipated to contribute to the alteration of the region's agricultural character. Although individual projects may implement measures to reduce visual impacts on a case-by-case basis, the proposed Project's scale and visibility would represent a cumulatively considerable contribution to significant cumulative impacts on visual resources. The cumulative impacts would remain significant and unavoidable, even with the implementation of Mitigation Measures MM 4.1-1 through MM 4.1-7.

6.2.2 Agricultural Resources

As described in Section 4.2, *Agricultural Resources*, of this Draft EIR, the proposed Project would result in the conversion of approximately 10,582 acres of Important Farmland, including approximately 5,784 acres of Prime Farmland, 670 acres of Unique Farmland, and 4,128 acres of Farmland of Statewide Importance. While the proposed Project would indirectly support groundwater sustainability by reducing demand on the Kern County Subbasin, the long-term conversion of 10,582 acres of Important Farmland to non-agricultural use for a minimum of 35 years would result in a significant and unavoidable impact. Additionally, the proposed Project would remove approximately 10,689 acres of agricultural land from Farmland Security Zone and Williamson Act Land Use Contracts (WALUCs). The conversion of these lands to solar energy production and associated infrastructure would constitute a change in use that is incompatible with the requirements of Farmland Security Zone and Williamson Act enrollment. As such, the affected parcels would no longer qualify for continued participation in the program. Therefore, impacts related to the cancellation of an open space contract would be significant and unavoidable, despite implementation of Mitigation Measures MM 4.2-1, MM 4.2-2, MM 4.9-1 (Section 4.9, *Hazards and Hazardous Materials*), and MM 4.10-1 (Section 4.10, *Hydrology and Water Quality*).

Although the conversion of agricultural land to non-agricultural uses is affected by numerous factors, the proposed Project's direct conversion of agricultural land, along with the cancellation of existing Farmland Security Zone and Williamson Act Contracts, is cumulatively significant when considered in connection with the effects of other closely related past, current, and foreseeable future projects. Because no feasible mitigation is available, cumulative impacts regarding agricultural resources are considered significant and unavoidable.

6.2.3 Air Quality

As described in Section 4.3, *Air Quality,* estimated proposed Project-level emissions of reactive organic gases, nitrogen oxides (NO_x), carbon monoxide (CO), sulfur oxides (SO_x), and particulate matter (PM_{10}, and $PM_{2.5}$) during construction are below the San Joaquin Valley Air Pollution Control District's (SJVAPCD's) significance thresholds with the implementation of Mitigation Measures MM 4.3-1 through MM 4.3-7. However, it was determined that potential temporary cumulative impacts to air quality could occur from construction of the proposed Project which in combination with regional growth projections and other projects within 6 miles of the proposed Project in the same air basin could make a cumulatively considerable contribution to a temporary, significant, and unavoidable cumulative local impact.

6.2.4 Biological Resources

As described in Section 4.4, *Biological Resources,* the Project site exhibits high biological sensitivity that would be directly or indirectly impacted by the implementation of the proposed Project. The implementation of Mitigation Measures MM 4.4-1 through 4.4-25 would reduce Project-specific impacts to a less than significant level; however, the proposed Project would still

make a make a cumulatively considerable contribution to significant cumulative impacts involving special-status species, sensitive natural communities, and wildlife movement.

There are a number of special-status species that are known, or are likely to, utilize the Project site and surrounding vicinity. Implementation of the proposed Project, in addition to the other projects underway or proposed within Kern County, would have the potential to impact the same special-status species. The Project site contains habitats that support insects, rodents, and small birds that provide a prey base for raptors and terrestrial wildlife. In addition, based on the literature review and database search completed for the proposed Project, the region is known to support a diversity of special-status species, most of which are expected to utilize the Project site on a transient basis. Given the number of present and reasonably foreseeable future development projects in the San Joaquin Valley, the proposed Project, when combined with these projects, would contribute to an incremental cumulative loss of habitat for special-status species. While the proposed Project would have less than significant impacts on sensitive biological resources with the implementation of Mitigation Measures MM 4.4-1 through MM 4.4-25, and Mitigation Measure MM 4.1-4 (see Section 4.1, *Aesthetics and Visual Resources*) at the Project level, when combined with related development projects, cumulative impacts would be significant and unavoidable.

With regard to sensitive natural communities, proposed Project activities would directly impact bush seepweed scrub (Sites 2, 3, and 8 and gen-tie line route), spinescale scrub (Site 8), and tar plant fields (Site 3 and gen-tie line route). While the proposed Project would have less than significant impacts on sensitive natural communities with the implementation of Mitigation Measures MM 4.4-5 MM 4.4-6, and MM 4.4-18 for indirect impacts as well as MM 4.4-19, and MM 4.4-21 for direct impacts at the Project level, when combined with related development projects, cumulative impacts would be significant and unavoidable.

When considered in combination with other existing and reasonably foreseeable projects in the surrounding, relatively flat, and open portions of the Valley Region south of the Tehachapi foothills, west to the coast range, east to the Sierra Nevada, and north beyond the Kern County boundary, the proposed Project has the potential to further reduce local wildlife movement. While the proposed Project would have less than significant impacts on the movement of wildlife species with the implementation of Mitigation Measures MM 4.4-17, MM 4.4-21, and MM 4.1-5 (Section 4.1, *Aesthetics and Visual Resources*) at the Project level, when combined with related development projects, cumulative impacts would be significant and unavoidable.

The proposed Project would make a cumulatively considerable contribution to significant cumulative impacts involving: certain special-status species that currently, or have moderate to high potential to, utilize the Project site and surrounding vicinity; certain sensitive natural communities found on, or within proximity to, the Project site; waters and wetland features that—although not waters of the United States—are likely jurisdictional waters of the state pursuant to the Porter-Cologne Act and Section 1600 of the California Fish and Game Code; and local wildlife movement. The proposed Project's contribution to these cumulative impacts would be reduced with the implementation of the project-specific mitigation measures described above; however, impacts to special status species, sensitive natural communities, and wildlife movement would remain significant and unavoidable.

6.2.5 Mineral Resources

As described in Section 4.12, *Mineral Resources*, the Project site is not located on lands classified by the State Geologist as MRZ-1 or MRZ-2, and no mines are active within the Project site. However, nine parcels located within Sites 1 and 8 in the northern and southern portions of the Project site, are designated Map Code 8.4 – Mineral and Petroleum by the Kern County General Plan (KCGP) within the Project site. Site 1 contains 425.06 acres and Site 8 contains 84.55 acres of land designated Map Code 8.4. Additionally, there are multiple oil and gas wells located within the Project site and mineral rights holders that currently have active rights to mineral resources on several of the Tax Assessor's Parcels located within the Project site. Installation of solar panels and supporting infrastructure could impede access to oil resources as well as aggregate extraction or impede potential related operations in adjacent areas, which is considered a potentially significant, Project-specific impact that can be mitigated to a less than significant level with the implementation of Mitigation Measure 4.12-1.

However, although Mitigation Measure MM 4.12-1 would ensure surface access and drilling areas, there is the potential for not all mineral rights holders to reach an agreement with the Project proponent. Therefore, the proposed Project, combined with other related projects, could result in the loss of availability of a known mineral resource or a locally important mineral resource recovery site. Even with implementation of Mitigation Measure MM 4.12-1, the proposed Project's incremental effect will make a cumulatively considerable contribution to a significant and unavoidable cumulative impact to mineral resources.

6.2.6 Wildfire

As described in the discussion of cumulative wildfire impacts in Section 4.18, *Wildfire*, the proposed Project would involve installing photovoltaic (PV) module configurations, transformers, battery energy storage systems (BESS), solar meteorological station(s), substation(s), gen-tie lines, microwave/radio towers, water storage tank(s), and operations and maintenance buildings. All new infrastructure would be installed and operated in accordance with safety standards that would reduce the risk of potential fires.

The proposed Project would not result in project-specific impacts related to wildfire, because it would not result in the: impairment of an adopted emergency response plan; exposure of proposed Project occupants to pollutant concentrations from a wildfire; installation or maintenance of associated infrastructure that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment; or exposure of people or structures to significant risks as a result of runoff, post-fire slope instability, or drainage changes. However, given the proposed Project's location in a high wind rural area with limited infrastructure in the vicinity of the Project site, the proposed Project, when considered cumulatively with past, present, and reasonably foreseeable future projects in the vicinity would have a significant and unavoidable cumulative impact related to wildfire even with implementation of Mitigation Measures MM 4.1-4, MM 4.10-1, and MM 4.14-1.

6.3 Applicant Submitted Proposed Project Objectives

The following objectives have been identified for the proposed Project:

- Provide the State of California with a renewable energy source that would assist the State in complying with the Renewables Portfolio Standard (RPS) under Senate Bill 100, (2018), which mandates that 100% of all electricity sold in the state be generated from renewable energy and zero-carbon resources by December 31, 2045, with interim targets of 50% by 2026 and 60% by 2030.
- Establish a large-scale solar PV and battery energy storage facility in a manner that maximizes the production of reliable electricity in an economically feasible and commercially financeable manner that can be marketed to different power utility companies or other off-takers of energy.
- Expand the reach of renewable energy development through the development of energy storage, making solar more valuable by storing energy after sunset and placing it on the grid.
- Provide energy to the electric grid to meet increasing demand for in-state generation when demand peaks.
- Provide revenues that help support public services within Kern County.
- Assist the County in continuing the goal in the Energy Element of its General Plan to develop large-scale solar energy development as a major energy source in the County.
- Promote economic development and bring jobs to the region throughout the life of the proposed Project.
- Support California's efforts to reduce greenhouse gas (GHG) emissions consistent with the timeline established in 2006 under California Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, which requires the California Air Resources Board to reduce statewide emissions of GHGs to at least the 1990 emissions level by 2020. This timeline was updated in 2016 under SB 32, which requires that statewide GHG emissions be reduced to at least 40 percent below the statewide GHG emissions limit by 2030.
- Support California's aggressive Renewables Portfolio Standards (RPS) Program consistent with the timeline established by SB 100 (De León, also known as the "California Renewables Portfolio Standard Program: emissions of greenhouse gases") as approved by the California Legislature and signed by Governor Brown in September 2018, which established a 50 percent RPS goal by December 31, 2026, 60 percent by December 31, 2030, and a goal that 100 percent of electric retail sales to end-use customers be provided by renewable energy and zero-carbon resources by 2045.
- Utilize historically farmed lands that would otherwise be fallowed due to significant water shortages, thereby providing local farmers with an alternative to the economic losses associated with limiting their production.

6.4 Overview of the Proposed Project

The proposed Project involves seven sites constituting approximately 11,983 acres of privately owned land, on 128 parcels that are mostly used for agricultural production and include rural residences, oil and gas wells, and open space, in the valley region of Kern County. The proposed Project includes the construction and operation of a PV solar facility and associated infrastructure with the capacity to generate up to up to 2 gigawatts (GW) (2,000 megawatts (MW)) of renewable electrical energy with a combined 2 GW Battery Energy Storage System (BESS) capable of storing approximately 16,000 megawatt-hours (MWh) or 16 gigawatt-hours (GWh) of energy. Proposed facilities would include solar panels, solar racking, inverters, service roads, a power collection system, communication cables, microwave towers, solar meteorological stations, overhead and underground transmission lines, electrical switchyards, project substations, BESS(s), and operations and maintenance (O&M) facilities. The transfer of power would be supported by a 500-kV overhead gen-tie and/or underground electrical transmission line(s) originating from one or more existing locations on-site and terminating at the Pacific Gas & Electric (PG&E) Midway Substation. The proposed Project requires the approval of 17 Conditional Use Permits (CUPs), 10 General Plan Amendments (GPAs), a Specific Plan Amendment (SPA), two Public Access Easement Vacations, and cancellation of active Farmland Security Zone and WALUCs involving approximately 10,689 acres of agricultural lands.

The proposed Project would generate power that would assist the State in achieving the RPS under SB 100, which mandates that 100% of all electricity sold in the state be generated from renewable energy and zero-carbon resources by December 31, 2045, with interim targets of 50% by 2026 and 60% by 2030. Power that the proposed Project would generate would be sold to California investor-owned utilities, municipalities, community choice aggregations, or other purchasers.

For a more detailed description of the proposed Project, see Chapter 3, *Project Description.*

6.5 Overview of Alternatives to the Proposed Project

As stated in CEQA (Section 21002.1(a)), the identification and analysis of alternatives to a project are a fundamental aspect of the environmental review process and required to ensure the consideration of ways to mitigate or avoid the significant environmental effects of a project. Based on the significant environmental impacts of the proposed Project, the aforementioned objectives established for the proposed Project, and the feasibility of the alternatives considered, five alternatives, including the No Project Alternative as required by CEQA, are considered in this chapter and summarized in **Table 6-2:** *Summary Comparison of Alternative Impacts*. The CEQA-required Environmentally Superior Alternative is described in Section 6.9, *Environmentally Superior Alternative*, below.

6.6 Alternatives Considered and Rejected

Kern County considered numerous alternatives to reduce the proposed Project's significant and unavoidable impacts. Per CEQA, Kern County, as the lead agency, may make an initial determination as to which alternatives are feasible and warrant further consideration, and which are infeasible. The following alternatives were initially considered but were eliminated from further consideration in this Draft EIR because they do not meet proposed Project objectives and/or were infeasible.

6.6.1 Wind Energy Project Alternative

The Wind Energy Project Alternative would involve the use of wind energy as an alternative to development of the solar facility. Similar to solar power, energy production from wind is an alternative to energy production from coal, oil, natural gas, or nuclear sources. Wind energy provides the following benefits:

- It is a renewable and infinite resource.
- It is free of any emissions, after installation, including carbon dioxide and other GHGs.
- It is a free resource after the capital cost of installation (excluding maintenance).

In addition, energy production from wind power would not require the significant water usage associated with coal, nuclear, and combined-cycle sources. Turbines used in wind farms for commercial production of electric power are usually three-bladed units that are pointed into the wind by computer-controlled motors. The wind farm would consist of a group of wind turbines placed where electrical power is produced. The individual turbines would be interconnected with a medium-voltage power collection system and a communications network. At a substation, the medium-voltage electrical current would be increased through a transformer before connection to the high-voltage transmission system. Compared with traditional energy sources, the environmental effects of wind power are relatively minor. However, wind farms would not decrease short-term construction-related air emissions. Wind turbines would also have the potential to adversely affect avian species in the local area. In addition, in order for wind turbines to produce an equivalent 2 GW of power that the proposed Project would produce, the alternative would require more land area than what the Project site currently accommodates and, consequently, the proposed Project site acreage would need to be expanded.

As noted above, some of the proposed Project objectives are to develop a solar facility that will help meet the increasing demand for clean, renewable electrical power, as well as help California meet its statutory and regulatory goals of generating more renewable power with minimum potential for environmental effects by using proven and established PV technology that is efficient, requires low maintenance, and is recyclable. Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the proposed Project objectives, are infeasible, or do not avoid or substantially reduce significant environmental effects. Therefore, this alternative was eliminated from further consideration because:

- It would substantially increase the significant aesthetic impacts associated with the proposed Project because wind turbines would be much taller than solar panels, require Federal Aviation Administration lighting, and are more visible from many viewpoints.
- It may result in additional/greater biological resources impacts to avian species than the proposed Project.
- It may generate long-term noise impacts to nearby sensitive receptors from rotating turbine blades.
- It may result in increased land use and planning impacts associated with the proposed Project due to the need for a larger Project site.

6.6.2 Industrial Power Plant Alternative

This alternative would involve the development of a natural gas-fired power plant or plants (equivalent to 2 GW) in Kern County. Fossil fuel-powered plants are designed on a large scale for continuous operation. However, byproducts of industrial power plant operation need to be considered in both design and operation. When waste heat that results from the finite efficiency of the power cycle is not recovered and used as steam or hot water, it must be released to the atmosphere, and often uses a cooling tower as a cooling medium (especially for condensing steam). The flue gas from combustion of the fossil fuels is discharged to the air and contains carbon dioxide and water vapor as well as other substances, such as nitrogen, nitrogen oxides, and sulfur oxides.

Furthermore, unlike the proposed Project, fossil fuel-powered plants are major emitters of GHGs. In addition, industrial power plants generally involve the construction of large structures, such as cooling towers and gas stacks, as well as a large number of employees to operate the facility on a 24/7 basis 365 days a year. Accordingly, the development of an industrial power plant would typically result in greater adverse impacts related to: (1) aesthetics and the local visual setting of the proposed Project site; (2) air quality and GHG emissions; (3) land use and planning conflicts with the rural development of the surrounding area; (4) noise from the plant operations; (5) traffic from a greater number of employees required to operate the facility, as compared to a PV solar energy production facility; and (6) demand on public utilities, including water and waste disposal. As noted above, some of the objectives for the proposed Project are to develop a solar project that would help meet the increasing demand for clean, renewable electrical power as well as help California meet its statutory and regulatory goals of generating more renewable power with minimum potential for environmental effects. Alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the proposed Project objectives, are infeasible, or do not avoid or substantially reduce significant environmental effects. Therefore, this alternative was eliminated from further consideration because:

- It would result in additional/greater impacts than the proposed Project, including aesthetics, air quality, biological resources, GHG emissions, land use and planning, noise, transportation and traffic, and public utilities, including water use and disposal.
- It would not contribute to the statewide renewable energy and GHG reduction objectives, as this alternative would use non-renewable energy to produce electricity.

6.6.3 Alternative Site

This alternative would involve the development of the proposed Project on another site located within Kern County, other than constructing rooftop distributed generation systems as described in Section 6.6.4, *Alternative 4—No Ground Mounted Utility-Solar Development Alternative—Distributed Commercial and Industrial Rooftop Solar Only*, below. Although undetermined at this time, the alternative Project site would likely be located in the San Joaquin Valley of Kern County. Similar to the proposed Project, this alternative is assumed to involve the construction of a 2 GW PV solar facility and (up to) 2 GW BESS on a site totaling 11,983 acres.

The San Joaquin Valley within Kern County has attracted renewable energy development applications that are being proposed for vacant land or land with a history of agricultural uses. However, given that the proposed Project requires 11,893 acres, it is unlikely that the Project proponent would be able to acquire parcels for the alternative site that would collectively offer sufficient contiguous or semi-contiguous areas to accommodate the full scope of development. Furthermore, while the individual parcels within the San Joaquin Valley in Kern County may exhibit similar sizes, configurations, and land use histories as the Project site, these alternative sites would likely have similar project- and cumulative-level impacts after mitigation, including significant impacts regarding aesthetics and visual resources, agriculture, air quality, biological resources, and mineral resources, and wildfire. This is based on the known general conditions in the area and the magnitude of the proposed Project.

As noted above, alternatives may be eliminated from detailed consideration in an EIR if they fail to meet most of the proposed Project objectives, are infeasible, or do not avoid or substantially reduce significant environmental effects. Therefore, this alternative was eliminated because it would be infeasible to require the Project proponent to acquire an alternative site of adequate size, and it would not avoid or substantially reduce the significant environmental effects of the proposed Project.

6.7 Alternatives to the Proposed Project

Alternatives that would avoid or substantially lessen any of the significant effects of the proposed Project and feasibly attain most of the basic proposed Project objectives are evaluated in Sections 6.8.1 through 6.8.5, below. The alternatives are discussed with respect to their relationship to the proposed Project's objectives. Kern County has considered in this Draft EIR the following five alternatives, which are summarized in **Table 6-1:** *Summary of Development Alternatives*, and discussed individually below:

- Alternative 1—"No Project" Alternative
- Alternative 2—General Plan/Specific Plan and Zoning Build-Out Alternative
- Alternative 3—Reduced Acreage Alternative
- Alternative 4—No Ground-Mounted Utility-Solar Development Alternative – Distributed Commercial and Industrial Rooftop Solar Only
- Alternative 5—Non-Williamson Act and Farmland Security Zone Parcels Alternative

The impacts of the alternatives are compared in relation to the proposed Project in **Table 6-3:** *Summary Comparison of Alternative Impacts,* below.

Table 6-1: Summary of Development Alternatives

Alternative	Description	Basis for Selection and Summary of Analysis
Proposed Project	Construction and operation of a PV solar facility and associated infrastructure with the capacity to generate up to 2 GW of renewable electrical energy with a combined 2 GW BESS capable of storing approximately 16 GWh of energy. Approval of 17 CUPs, 10 GPAs, an SPA, two Public Access Easement Vacations, and cancellation of active Farmland Security Zone and WALUCs involving approximately 10,689 acres of agricultural lands, required.	N/A
Alternative 1: No Project Alternative	No physical changes would be made to the Project site besides those which occur as part of existing agricultural operations and oil and gas development.	• Required by CEQA • Avoids need for all discretionary entitlements • Avoids all significant and unavoidable impacts • Greater impacts regarding energy, GHGs, hydrology and water quality (groundwater), and utilities and service systems (groundwater) • Less impacts in all remaining environmental issue areas • Does not meet any of the Project Proponent's proposed Project objectives

Table 6-1: Summary of Development Alternatives

Alternative	Description	Basis for Selection and Summary of Analysis
Alternative 2: General Plan/Specific Plan and Zoning Build-Out Alternative	Development of the Project site pursuant to the current land use and zoning classifications. Current land use designations are: 4.1 Special Treatment Areas (Accepted County Plan Areas); 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size); 8.1/2.3 (Intensive Agriculture, Min. 20-Acre Parcel Size/Shallow Groundwater); 8.3 (Extensive Agriculture, Min. 20- or 80-Acre Parcel Size); 8.4 (Mineral and Petroleum, Min. 5-Acre Parcel Size); and 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size). Current zoning is Exclusive Agriculture (A).	• Avoids need for all discretionary entitlements • Similar impacts regarding geology and soils, public services, and wildfire • Less impacts regarding aesthetics and visual resources, agricultural resources, land use and planning, and mineral resources • Greater overall impacts in all remaining environmental issue areas • Does not meet any of the Project Proponent's proposed Project objectives
Alternative 3: Reduced Acreage Alternative	Reduction in the Project area by approximately 40 percent. Site 5 (2,677 acres) and Site 6 (2,409 acres) would be omitted from the Project area. Total Project area would be reduced by approximately 5,086 acres, from 11,983 to 6,892 acres. Reduction in total: generation capacity by approximately 43 percent, from 2 GW to 1.143 GW; and energy storage capacity by 60 percent, from 16 GWh to 6.4 GWh. CUPs, GPAs, Farmland Security Zone and WALUC cancellations, and vacation of public access easements for Sites 5 and/or 6 would not be required. Sites 1 through 4 and Site 8 would be developed as would occur with the proposed Project.	• Less impacts regarding aesthetics and visual resources, agricultural resources, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, land use and planning, mineral resources, noise, public services, transportation, tribal cultural resources, and wildfire • Greater impacts in all remaining environmental issue areas • Decreased GHG offset benefits to meet Project Proponent's proposed Project objectives • Does not meet all Project Proponent's proposed Project objectives
Alternative 4: No Ground-Mounted Utility-Solar Development Alternative – Distributed Commercial and Industrial Rooftop Solar Only	Development of geographically distributed small to medium solar PV systems (100 kWh to 1 MW) within existing developed areas, typically on the rooftops of commercial and industrial facilities situated throughout the valley region of Kern County.	• Avoids need for solar facility CUP, GPAs, SPA, and WALUC cancellations • Avoids significant and unavoidable impacts regarding aesthetics and visual resources, agricultural resources, air quality, biological resources, mineral resources, and wildfire • Less impacts regarding cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality (except for groundwater resources), land use and planning, public services, transportation, tribal cultural resources, and—except for groundwater—utilities and service systems • Greater impacts regarding energy, GHGs, and groundwater

Table 6-1: Summary of Development Alternatives

Alternative	Description	Basis for Selection and Summary of Analysis
Alternative 5: Non-Williamson Act and Farmland Security Zone Parcels Alternative	Removal of all parcels under currently active Farmland Security Zone and WALUCs from the development footprint, resulting in reduction of the Project site by approximately 90 percent. The extent of reduction for each individual Project site would vary; reductions would range from approximately 68 percent to as much as 100 percent. Sites 3, 4, and 5 would be completely removed.	• Avoids need for cancellation of active Farmland Security Zone and WALUCs • Greater impacts regarding energy, GHGs, and groundwater • Less impacts regarding all other remaining environmental issues areas • Decreased GHG offset benefits to meet Project Proponent's proposed Project objectives

6.7.1 Alternative 1—"No Project" Alternative

As required by the CEQA Guidelines Section 15126.6, this section of this Draft EIR describes and analyzes a "no project" alternative for the purpose of comparing the impacts of approving the proposed Project with the impacts of not approving the proposed Project. Alternative 1, the No Project Alternative, assumes that the development of the (up to) 2 GW PV solar facility on 11,983 acres of privately owned land would not occur. The No Project Alternative would not require the GPAs, an SPA, CUPs, Public Access Easement Vacations, and the cancellation of Farmland Security Zone and WALUCs which are required for the proposed Project. The No Project Alternative would maintain the current zoning, land use classifications, and existing land uses, which consist mostly of agricultural and undisturbed land. No physical changes would be made to the Project site besides those which occur as part of existing agricultural operations and oil and gas development (for example, crop rotations and changes to oil and gas wells and related infrastructure). Therefore, the No Project Alternative would not result in a renewable energy source that would provide reliable electricity, promote economic development, or assist the State of California in complying with the RPS and GHG emission reduction standards.

Environmental Impact Analysis

Aesthetics

Under the No Project Alternative, the Project site would remain in its current state as mostly agricultural land with oil and gas development, rural residences, and open space; the proposed solar facility and associated infrastructure would not be constructed. As such, there would be no change to the existing visual character of the site and the absence of any scenic vistas would remain the same. Impacts regarding scenic resources, light sources, and glare would not occur. Therefore, the No Project Alternative would not result in impacts related to aesthetics and would result in less impacts compared to the proposed Project.

Agricultural and Forestry Resources

Under the No Project Alternative, the Project site would remain in its current state as mostly agricultural land with oil and gas development, rural residences, and open space; the proposed solar facility and associated infrastructure would not be constructed. As such, the No Project Alternative would not involve changes to the existing environment that could result in the direct or indirect conversion of farmland or forest land to non-agricultural or non-forest uses, respectively. Therefore, the No Project Alternative would result in no impacts related to agriculture and forestry resources and would result in less impacts compared to the proposed Project.

Air Quality

Under the No Project Alternative, the Project site would remain in its current state as mostly agricultural land with oil and gas development, rural residences, and open space. There would be no construction or operational activities that would generate new air emissions in exceedance of the SJVAPCD's regional and localized significance thresholds; conflict or obstruct the implementation of air quality plans; expose sensitive receptors to substantial pollutant concentrations; or contribute to a cumulative net increase of criteria pollutants in the proposed Project's region. Therefore, the No Project Alternative would result in no impacts related to air quality and would result in less impacts compared to the proposed Project.

Biological Resources

Under the No Project Alternative, the Project site would remain in its current state as mostly agricultural land with oil and gas development, rural residences, and open space; the proposed solar facility and associated infrastructure would not be constructed. As such, all biological resources, including special-status species, sensitive natural communities, and migratory wildlife, would not be subject to impacts from new development or changes in use of the Project site. Therefore, the No Project Alternative would result in no impacts related to biological resources and would result in less impacts compared to the proposed Project.

Cultural Resources

Under the No Project Alternative, the Project site would remain in its current state as mostly agricultural land with oil and gas development, rural residences, and open space; the proposed solar facility and associated infrastructure would not be constructed. As such, there would be no, new ground-disturbing activities that may disturb historical resources, archaeological resources, or human remains that may exist on-site. However, ground-disturbance activities associated with existing agricultural operations located within the Project site would continue, which have the potential to encounter and adversely affect subsurface resources. Impacts would be less than significant and similar to the proposed project.

Energy

Under the No Project Alternative, the Project site would remain in its current state as mostly agricultural land with oil and gas development, rural residences, and open space, and no new energy consuming activities would occur beyond what is presently attributed to existing operations. As such, the No Project Alternative would not result in wasteful, inefficient, or unnecessary consumption of energy resources or conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Although the No Project Alternative would not create new, direct energy-related impacts, it would not result in the establishment of a new, large-scale solar facility which would contribute to the State's RPS goals, thereby representing a greater long-term impact in terms of renewable energy generation. Impacts would remain less than significant.

Geology and Soils

Under the No Project Alternative, the Project site would remain in its current state as mostly agricultural land with oil and gas development, rural residences, and open space, and no new ground disturbance would occur beyond what currently occurs with existing agricultural activities. As such, the No Project Alternative would not directly or indirectly cause potential geologic hazards related to a rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, and/or landslides; result in substantial soil erosion and/or loss of topsoil; result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, and/or collapse; be located on expansive soils and/or soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems; and/or directly or indirectly destroy a unique paleontological resource or unique geologic feature. Therefore, the No Project Alternative would result in no impacts related to geology and soils and would result in less impacts compared to the proposed Project.

Greenhouse Gas Emissions

Under the No Project Alternative, the Project site would remain in its current state as mostly agricultural land with oil and gas development, rural residences, and open space; the proposed solar facility and associated infrastructure would not be constructed. As such, there would be no construction or operational activities that may result in new GHG emissions, and this alternative would not create a significant impact on the environment or conflict with any applicable plans, policies, or regulations that have been adopted for the purpose of reducing GHG emissions. Further, the No Project Alternative would be consistent with the California Air Resources Board 2022 Scoping Plan regarding avoiding the loss of conversion of natural and working lands. While the No Project Alternative would result in no impacts related to GHG emissions, this alternative would not offset GHGs through the long-term operation of the solar facility. Therefore, the No Project Alternative would result in greater environmental impacts related to GHG emissions compared to the proposed Project, given the resulting offset and expected net reduction of GHG emissions from the proposed Project.

Hazards and Hazardous Materials

Under the No Project Alternative, the Project site would remain in its current state as mostly agricultural land with oil and gas development, rural residences, and open space; the proposed solar facility and associated infrastructure would not be constructed. The No Project Alternative would not create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials in to the environment; emit hazardous waste within 0.25 miles of a school; be located on a site that is included on a list of hazardous materials sites; result in a safety hazard or excessive noise; impair implementation of an adopted emergency response plan; expose people or structures to significant risk of loss, injury, or death involving wildland fires; or generate disease vectors. Therefore, the No Project Alternative would result in no impacts regarding hazards and hazardous materials and would result in less impacts compared to the proposed Project.

Hydrology and Water Quality

Under the No Project Alternative, the Project site would remain in its current state as mostly agricultural land with oil and gas development, rural residences, and open space, and existing hydrology would remain unchanged, as no development or ground disturbance would occur. As such, this alternative would not violate water quality standards or waste discharge requirements; substantially alter the existing drainage pattern of the site or area in a manner that would substantially increase the rate or amount of surface runoff which would result in flooding on-site or off-site; create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage system; contribute to inundation by a flood hazards, tsunami, or seiche; or conflict with or obstruct implementation of a water quality control plan or groundwater management plan. Agricultural activities would be required to comply with the Department of Water Resources' recently approved groundwater sustainability plans for the Kern County Subbasin Groundwater Sustainability Agencies.

Under the No Project Alternative, the Tjaarda Dairy, located on Site 6, would continue to operate pursuant to applicable water quality regulations (for example, regulations requiring the implementation of waste discharge requirements).

Under the No Project Alternative, existing agricultural operations would remain, resulting in continued demand for water resources and sustained pressure on the Kern County Subbasin and local water purveyors, such as the Semitropic Water Storage District. However, withdrawals of groundwater would be required to comply with allocations set forth in the recently adopted groundwater sustainability plans for the Kern County groundwater subbasins. Therefore, the No Project Alternative would result in greater water demand than the proposed Project, but compliance with existing regulations would ensure that the No Project Alternative does not result in potentially significant impacts regarding water demand.

Therefore, the No Project Alternative would result in no impacts related to hydrology and water quality and would result in less impacts compared to the proposed Project.

Land Use and Planning

The No Project Alternative would not develop any new uses on the Project site and, consequently, would not require GPAs, SPAs, CUPs, or cancellations of WALUCs. The No Project Alternative would not cause a significant environmental impact by physically dividing an established community or conflicting with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Further, as discussed above, the Tjaarda Dairy would continue to operate in compliance with applicable zoning regulations and environmentally-related land use policies. Therefore, the No Project Alternative would result in no impacts related to land use and planning and would result in less impacts compared to the proposed Project.

Mineral Resources

Under the No Project Alternative, the Project site would remain in its current state as mostly agricultural land with oil and gas development, rural residences, and open space, and no ground disturbance besides what occurs as part of existing agricultural and oil and gas operations would occur. The Project site currently consists of several oil and gas wells (plugged, cancelled, and one idle), along with additional resources for which several mineral rights holders maintain access rights on several of the Project parcels. The No Project Alternative would not result in the loss of availability of a known mineral resources or locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. Therefore, the No Project Alternative would result in no impacts related to mineral resources and would result in less impacts compared to the proposed Project.

Noise

Under the No Project Alternative, the Project site would remain in its current state as mostly agricultural land with oil and gas development, rural residences, and open space; the proposed solar facility and associated infrastructure would not be constructed. As such, no new noise sources from construction and operational activities would occur, and the existing noise conditions would remain the same. Specifically, the No Project Alternative would not result in the generation of a substantial temporary or permanent increase in ambient noise levels or generate excessive ground-borne vibration. Therefore, the No Project Alternative would result in no impacts related to noise and would result in less impacts compared to the proposed Project.

Public Services

Under the No Project Alternative, the Project site would remain in its current state as mostly agricultural land with oil and gas development, rural residences, and open space, and there would be no substantial change in population. As such, under the No Project Alternative, there would be no new demand for fire protection services, law enforcement, schools, parks, or other government facilities beyond what is presently attributed to existing operations. Therefore, this alternative would not result in the need for new or physically altered government facilities in order to maintain acceptable service ratios, response times, or other performance objectives. The No Project Alternative would result in no impacts related to public services and would result in less impacts compared to the proposed Project.

Transportation

Under the No Project Alternative, the Project site would remain in its current state as mostly agricultural land with oil and gas development, rural residences, and open space, and no new transportation activities would occur beyond what is presently attributed to existing operations. Existing traffic patterns and volumes on nearby roadways would remain unchanged. As such, the No Project Alternative would not conflict with a program, ordinance, or policy addressing the circulation system, or conflict or be inconsistent with CEQA Guidelines Section 15064.3(b). In addition, there would be no changes to existing traffic patterns or volumes that would result in new or increased hazards associated with geometric design features or inadequate emergency access. Therefore, the No Project Alternative would result in no impacts related to transportation and traffic and would result in less impacts compared to the proposed Project.

Tribal Cultural Resources

Under the No Project Alternative, the Project site would remain in its current state as mostly agricultural land with oil and gas development, rural residences, and open space; the proposed solar facility and associated infrastructure would not be constructed. As such, there would be no ground-disturbing activities besides those associated with ongoing agricultural and oil and gas operations, which may unearth previously undiscovered tribal cultural materials or cause a substantial adverse change in the significance of tribal cultural resources pursuant to applicable state and local provisions. Therefore, the No Project Alternative would result in no new impacts related to tribal cultural resources and would result in less impacts compared to the proposed Project.

Utilities and Service Systems

Under the No Project Alternative, the Project site would remain in its current state as mostly agricultural land with oil and gas development, rural residences, and open space; the proposed solar facility and associated infrastructure would not be constructed. As such, this alternative would not cause a demand for the relocation or construction of new or expanded water, wastewater treatment, stormwater, electrical power, natural gas, or telecommunication facilities. Furthermore, this alternative would not conflict with federal, state, or local management and reduction regulations related to solid waste.

However, under the No Project Alternative, existing agricultural operations would remain, resulting in continued demand for water resources and sustained pressure on the Kern County Subbasin and local water purveyors, such as the Semitropic Water Storage District. However, withdrawals of groundwater would be required to comply with allocations set forth in the recently adopted groundwater sustainability plans for the Kern County groundwater subbasins. Therefore, the No Project Alternative would result in greater water demand than the proposed Project, but compliance with existing regulations would ensure that the No Project Alternative does not result in potentially significant impacts regarding utilities and service systems (water-related or otherwise).

Wildfires

Under the No Project Alternative, the Project site would remain in its current state as mostly agricultural land with oil and gas development, rural residences, and open space; the proposed solar facility and associated infrastructure would not be constructed. As such, the No Project Alternative would not substantially impair an adopted emergency response plan or emergency evacuation plan; expose occupants to pollutant concentrations from wildfire; require the installation or maintenance of associated infrastructure; or expose people or structures to post-wildfire risks. Therefore, the No Project Alternative would result in no impacts related to wildfires and would result in less impacts compared to the proposed Project.

Comparative Impacts of Alternative 1

The No Project Alternative would avoid the significant and unavoidable impacts regarding aesthetics and visual resources (project and cumulative), agriculture (project and cumulative), air quality (cumulative only-construction), biological resources (cumulative only), mineral resources (cumulative only), and wildfire (cumulative only) which are associated with the proposed Project. Under this alternative, a solar facility and associated infrastructure would not be developed and, consequently, the opportunity to generate renewable energy and offset energy consumption and GHG emissions would be foregone. As a result, this alternative would result in greater impacts related to energy use and GHG emissions compared to the proposed Project. Additionally, the No Project Alternative would result in greater groundwater consumption (hydrology and water quality, and utilities and service systems) as compared to the proposed Project; however, withdrawals of groundwater would be required to comply with allocations set forth in the recently adopted groundwater sustainability plans for the Kern County groundwater subbasins.

Alternative 1's Relationship to the Applicant Submitted Project Objectives

The No Project Alternative would not achieve any of the Project objectives listed above in Section 6.3, *Applicant Submitted Project Objectives*.

6.7.2 Alternative 2—General Plan/Specific Plan and Zoning Build-Out Alternative

Implementation of General Plan/Specific Plan and Zoning Build-Out Alternative would involve development of the Project site pursuant to the current land use and zoning classifications. As described in Section 3.6.2, *Project Description - Land Use and Zoning*, the Project site has the following KCGP Map Codes: 4.1 Special Treatment Areas (Accepted County Plan Areas); 8.1 (Intensive Agriculture, Min. 20-Acre Parcel Size); 8.1/2.3 (Intensive Agriculture, Min. 20-Acre Parcel Size/Shallow Groundwater); 8.3 (Extensive Agriculture, Min. 20- or 80-Acre Parcel Size); 8.4 (Mineral and Petroleum, Min. 5-Acre Parcel Size); and 8.5 (Resource Management, Min. 20- or 80-Acre Parcel Size). Additionally, the Kern County Zoning Ordinance (KCZO) designates the Project site as Exclusive Agriculture (A). The Exclusive Agriculture (A) District is limited primarily to agricultural uses and other activities compatible with agricultural uses to prevent the encroachment of incompatible uses and the premature conversion of such lands to non-agricultural uses. Additionally, the KCGP Circulation Element identifies several future roadway alignments along section and mid-section lines within the Project site.

Given the land use and zoning designations described above, this alternative would involve the development of permitted uses associated with the Exclusive Agriculture (A) District, as defined in Chapter 19.12 of the KCZO. Permitted uses include agricultural uses, such as growing and harvesting crops, breeding and raising animals, and operating agricultural industries, such as animal and plant product processing facilities; residential uses that support agricultural operations, such as farm labor housing and single-family dwellings; commercial uses, such as fruit stands and horse boarding; utility and communication facilities; and resource extraction and energy development uses, such as oil and gas exploration and production facilities. All development would be limited to uses permitted by-right only. The following analysis evaluates the environmental impacts associated with build-out conditions that are limited to ministerial uses permitted under the existing planning framework. Given that commercial solar facilities such as the one included in the proposed Project would require several discretionary actions, such as GPAs, SPAs, CUPs, Public Access Easement Vacations and cancellations of Farmland Security Zone and WALUCs, Alternative 2 does not include the installation of a solar facility or, for that matter, any renewable energy production, storage, and/or transmission facility requiring a discretionary action.

Environmental Impact Analysis

Aesthetics

Under the General Plan/Specific Plan and Zoning Build-Out Alternative, the Project site would be developed in accordance with the land use standards and ministerial uses defined in the KCZO for the Exclusive Agriculture (A) District. While the specific type and location of future development remain uncertain, potential build-out of the Project site under this alternative includes ministerial uses, such as crop cultivation, animal breeding and raising, animal product testing, plant product processing, and residential and commercial uses permitted within the Exclusive Agriculture (A) District and deemed compatible with agricultural operations. Given that such uses would be

developed pursuant to KCGP policies and KCZO regulations (for example, minimum building/structural setback requirements from property lines, maximum land use densities, maximum building height regulations, and Kern County's Darks Skies Ordinance requirements for lighting), future development within the Project site is expected to be visually consistent with existing land uses; would not introduce new sources of substantial light or glare; and would not adversely affect scenic vistas, scenic resources, or the area's visual character or quality. Therefore, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in a less than significant impact regarding aesthetics and visual resources and would result in less impacts compared to the proposed Project.

Agriculture

Under the General Plan/Specific Plan and Zoning Build-Out Alternative, the Project site would be developed in accordance with the land use standards and ministerial uses defined in the KCZO for the Exclusive Agriculture (A) District. As such, the proposed solar facility would not be constructed, and the Project site would remain mostly in agricultural production. While the specific type and location of future development remain uncertain under this alternative, future development would be limited primarily to agricultural uses and other activities compatible with agricultural uses. Therefore, this alternative would not result in the direct or indirect conversion of farmland to non-agricultural uses. The General Plan/Specific Plan and Zoning Build-Out Alternative would result in less than significant impacts related to agriculture and would result in less impacts compared to the proposed Project. This alternative also would not make a cumulatively considerable contribution to a significant cumulative impact involving agriculture.

Air Quality

Under the General Plan/Specific Plan and Zoning Build-Out Alternative, the Project site would be developed in accordance with the land use standards and ministerial uses defined in the KCZO for the Exclusive Agriculture (A) District and applicable policies of the KCGP. Similar to the proposed Project, future uses under this alternative would result in short-term emissions associated with construction activities, such as the use of heavy construction equipment. However, potential impacts would still be mitigated through the ministerial approval process, which necessitates adherence to applicable state, regional, and local air quality regulations and standards—including, but not limited to, the California Air Resources Board's Airborne Toxics Control Measures and SJVAPCD rules and regulations. As such, construction activities for potential ministerial development would likely result in less than significant impacts and would result in similar impacts compared to the proposed Project.

In contrast, operations under this alternative may result in higher emissions, such as from routine emissions associated with agricultural vehicles, residential activities, landscape maintenance, and building operations. Although future development would comply with applicable policies and regulations to reduce operational impacts, given the uncertainty of the location and type of such development, this alternative may result in a cumulatively considerable net increase in criteria pollutants; expose sensitive receptors to elevated concentrations of air pollutants; or introduce objectionable odors (for example, from fertilizer applications of agricultural crops). Therefore, the

General Plan/Specific Plan and Zoning Build-Out Alternative may result in potentially significant cumulative impacts and would result in greater impacts as compared to the proposed Project.

Biological Resources

As described in Section 4.4, *Biological Resources,* the Project site contains biological resources, including, but not limited to, special-status plants and wildlife, aquatic resources and sensitive natural communities, and migratory wildlife. Therefore, new construction and operational activities under the General Plan/Specific Plan and Zoning Build-Out Alternative have the potential to directly and indirectly impact such resources, such as through the loss of habitat, habitat degradation, mortality of individuals, interference with reproductive success, and introduction of invasive species. Furthermore, this alternative has the potential to have greater impacts compared to the proposed Project. For example, new agricultural uses have the potential to increase human presence, as opposed to the unmanned solar facility that is only visited occasionally for maintenance and panel washing. Additionally, eligible ministerial development (for example, ongoing agricultural activities) would not be subject to CEQA environmental impact analysis and consequent protection measures regarding biological resources. Therefore, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in greater impacts compared to the proposed Project, as well as continue to make a cumulatively considerable contribution to significant cumulative impacts involving special-status species, sensitive natural communities, and wildlife movement.

Cultural Resources

Under the General Plan/Specific Plan and Zoning Build-Out Alternative, the Project site would be developed in accordance with the land use standards and ministerial uses defined in the KCZO for the Exclusive Agriculture (A) District and applicable policies of the KCGP. While the specific type and location of future development under this alternative remains uncertain, the range of permitted uses could result in varying levels of impact on cultural resources, as some uses may involve more substantial ground-disturbing activities than others. For example, crop cultivation is unlikely to involve substantial ground disturbance in previously undisturbed areas, whereas structural development may involve grading and other ground-disturbance activities at depths involving previously undisturbed soils. Although future ministerial uses would be consistent with state and local policies, future development would not be subject to CEQA processes (for example, mitigation measures for cultural resources not involving human remains or avoidance of prehistoric archaeological sites) that would provide additional protection measures regarding cultural resources. Therefore, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in greater impacts compared to the proposed Project. Impacts are conservatively considered to be significant and unavoidable.

Energy

Under the General Plan/Specific Plan and Zoning Build-Out Alternative, the Project site would be developed in accordance with the land use standards and ministerial uses defined in the KCZO for the Exclusive Agriculture (A) District and applicable policies of the KCGP. Similar to the proposed

Project, construction activities under this alternative would primarily rely on energy consumption in the form of diesel fuel and gasoline to operate off-road equipment (for example, excavators and loaders) and on-road vehicles (for example, haul trucks and workers' vehicles used in commuting). A minimal amount of temporary electricity may also be required for construction trailers, lighting, and electric construction equipment. Based on the anticipated scope and duration of construction, this alternative is expected to consume energy at levels comparable to the proposed Project.

In regard to operations, the General Plan/Specific Plan and Zoning Build-Out Alternative would involve ministerial uses that require higher energy demands compared to the proposed Project. Future development would comply with applicable state and local plans and regulations pertaining to renewable energy and energy efficiency, such as the KCGP Energy Element, California Energy Code, and CalGreen. However, compared to the solar facility under the proposed Project, which involves solar generation and storage facilities, future development under this alternative would have greater net energy impacts. Therefore, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in less than significant impacts related to energy but would result in greater impacts as compared to the proposed Project.

Geology and Soil

As described in Section 4.7, *Geology and Soils*, of this Draft EIR, the proposed Project would be potentially subject to geologic hazards, including seismic ground-shaking, liquefaction, and expansive soils. Therefore, given that the General Plan/Specific Plan and Zoning Build-Out Alternative would occur in the same geographic area as the proposed Project, this alternative would be exposed to similar geological conditions that may result in structural damage to future development (for example, single-family dwellings) or pose risks to on-site populations (for example, farmworkers). However, potential impacts would be mitigated through the ministerial approval process, which necessitates adherence to applicable state, regional, and local regulations, including, but not limited to, KCGP policies and the Kern County Building Code. In addition, geologic hazards would be evaluated on a case-by-case basis through the ministerial (for example, building and grading permits) approval process, with Project-specific conditions of approval imposed as warranted to ensure compliance with applicable safety standards. Therefore, impacts would be less than significant and would be similar to the proposed Project.

Furthermore, certain ministerial uses, such as farmworker housing and oil and gas production facilities, may involve substantial ground-disturbance and site clearing activities that could expose soils to the effects of wind and water erosion. As with the proposed Project, this alternative would adhere to National Pollutant Discharge Elimination System (NPDES) General Construction Permit requirements to prepare a Stormwater Pollution Prevention Plan (SWPPP) to incorporate erosion control measures and prevent soil from moving off-site. Furthermore, development would adhere to all temporary erosion control measures required by the Kern County Grading Code (Chapter 17.28.140). As a result, General Plan/Specific Plan and Zoning Build-Out Alternative would have a less than significant impact regarding soil erosion and loss of topsoil and would result in similar impacts compared to the proposed Project.

Under this alternative, future development would be limited to ministerial uses permitted under existing zoning. Pursuant to Title 14 of the Kern County Code of Ordinances (Chapter 14.20, Section 14.20.080), any private sewage disposal system must be maintained and operated in a sanitary condition and state of good repair. Compliance with these regulations would cause development that could occur under the General Plan/Specific Plan and Zoning Build-Out Alternative to result in less than significant impacts related to septic tanks and sewage disposal systems. However, depending on the specific type and amount of development that would occur warranting the installation of separate private sewage disposal systems, the General Plan/Specific Plan and Zoning Build-Out Alternative may result in greater or lesser impacts as compared to the proposed Project.

As discussed in Section 4.9, *Geology and Soils,* of this Draft EIR, no paleontological resources were identified within the Project site; however, the site is considered to have high paleontological sensitivity. As such, pursuant to KCGP Land Use, Open Space, and Conservation Element Implementation Measure M, the County would address the preservation of these resources where feasible by, for example, requiring preservation measures to protect and avoid impacts to such resources.

Overall, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in less than significant impacts regarding geology and soils and would result in similar impacts compared to the proposed Project.

Greenhouse Gas Emissions

Under General Plan/Specific Plan and Zoning Build-Out Alternative, the Project site would be developed in accordance with the land use standards and ministerial uses defined in the KCZO for the Exclusive Agriculture (A) District and applicable policies of the KCGP. Future ministerial uses under this alternative may include crop cultivation, animal breeding and raising, animal product testing, plant product processing, and certain residential and commercial uses compatible with agricultural operations. As such, future construction and operational activities associated with these permitted uses would result in GHG emissions. Full buildout of the road reservations along section and midsection lines, and the implementation of the future roadways defined in the County's Circulation Element could also indirectly result in increased vehicle emissions.

Although the KCZO allows for certain energy development uses (for example, solar energy electrical generators), the type, scale, and location of such facilities cannot be determined at this time and would likely be limited to on-site consumption. These facilities would offset at least some GHG emissions; however, the degree to which they would do so would be contingent on the number and capacity of the facilities that are actually installed and operated, which is currently unknown. Regardless, given the capacity of such facilities (for example, behind the meter facilities to satisfy on-site energy demand), it is unlikely that they would equate to the size and capacity of the proposed solar facilities and, consequently, result in the net reduction in the GHG emissions that are predicted to occur from the proposed Project.

Given the permitted uses and development standards, the General Plan/Specific Plan and Zoning Build-Out Alternative could contribute to cumulative GHG emissions that have a significant impact related to climate change, or would be inconsistent with at least certain GHG reduction measures set forth in an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. However, unlike the proposed Project, which includes a large-scale solar facility designed to generate renewable energy and offset GHG emissions, this alternative would not provide comparable emission reduction benefits, thereby foregoing potential offsets that would otherwise contribute to regional and statewide climate goals. Therefore, the General Plan/Specific Plan and Zoning Build-Out Alternative would make a cumulatively considerable contribution to significant impacts related to GHG emissions and would result in greater impacts as compared to the proposed Project.

Hazards and Hazardous Materials

Under the General Plan/Specific Plan and Zoning Build-Out Alternative, the proposed Project site would be developed in accordance with the land use standards and ministerial uses defined in the KCZO for the Exclusive Agriculture (A) District and applicable policies of the KCGP. Future permitted uses under this alternative may involve the use, transport, and disposal of hazardous materials that, if not handled properly or are released accidentally, could create a significant hazard to the public (for example, nearby residences and employees). For example, future agricultural operations may involve increased use of pesticides and herbicides, animal husbandry activities may use veterinary pharmaceuticals (for example, antibiotics and vaccines), and oil and gas production facilities may involve toxic and flammable substances. However, this alternative would be required to comply with applicable state and local regulations, including the Hazardous Material Release Response Plans and Inventory Act, which requires the preparation and maintenance of a Hazardous Materials Business Plan (HMBP) for any development that stores hazardous materials in quantities exceeding the thresholds established under California Health and Safety Code (HSC) Sections 25503 and 25505.

As described in Section 4.9, *Hazards and Hazardous Materials,* the Project site is within proximity to identified emergency evacuation routes associated with the evacuation plan for a potential Lake Isabella Dam failure. The Project site is located near I-5, which currently provides adequate access in the event of an emergency. Under this alternative, future permitted uses may include crop cultivation, animal breeding and raising, animal product testing, plant product processing, and certain residential and commercial uses compatible with agricultural operations. As such, this alternative is not anticipated to result in population growth that would substantially increase road usage, and, consequently, impair an emergency evacuation plan. Further, this alternative would involve implementation of the roadway reservations defined in the KCGP Circulation Element which could provide additional options for, and enhance, evacuation efforts in the event of an emergency. Therefore, Alternative 2 would result in less than significant or beneficial impacts regarding emergency evacuation plans and would result in less impacts compared to the proposed Project.

As previously described, the General Plan/Specific Plan and Zoning Build-Out Alternative would limit uses to primarily agricultural and agriculture-compatible uses. As such, future uses that involve agricultural and organic waste may inadvertently create new habitats for disease vectors (for example, files, mosquitos, and rodents). While the exact location, type, or number of vectors cannot be determined at this time, vectors that occur in excess have the potential to disseminate from the site and cause detrimental effects on the public health or well-being of the surrounding population. As such, this may result in potentially significant impacts and would result in greater impacts compared to the proposed Project.

Lastly, as described in Section 4.9, *Hazards and Hazardous Materials*, the Project site is not located within 0.25-miles of a school; is not listed in environmental regulatory databases for hazardous materials sites pursuant to Government Code Section 65962.5; and is not situated within an area governed by the Kern County Airport Land Use Compatibility Plan (ALUCP). Therefore, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in no impacts related to such hazards and would result in similar impacts compared to the proposed Project.

Overall, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in less than significant impacts regarding hazards and hazardous materials. However, given this alternative would involve new and continued agricultural operations that have the potential to increase disease vectors, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in greater, but less than significant, impacts compared to the proposed Project.

Hydrology and Water Quality

Under the General Plan/Specific Plan and Zoning Build-Out Alternative, the Project site would be developed in accordance with the land use standards and ministerial uses defined in the KCZO for the Exclusive Agriculture (A) District and applicable policies of the KCGP. Future permitted uses under this alternative may involve agricultural activities that can lead to polluted discharges entering receiving waters and exceeding permittable amounts. For example, pollutant discharges may consist of sediment from erosion, pollutants from herbicides or pesticides applied to agricultural lands or vegetation, or pollutants from construction equipment, such as oil drippings or accidental spills of petroleum hydrocarbons. However, agricultural activities would be subject to the waste discharge requirements of the State Water Board's Irrigated Lands Regulatory Program, which prevent agricultural discharges from impairing the waters that receive these discharges. Additionally, while the Project site exhibits generally flat topography, future ground-disturbing activities and the introduction of impervious surfaces have the potential to alter existing drainage patterns that may lead to erosion, increased surface runoff, flooding, and exceedance of storm drainage systems (that is, agricultural ditches and culverts). These potential impacts would be addressed with the proposed Project's compliance with NPDES General Construction Permit requirements, which require project proponents to prepare a SWPPP that will incorporate best management practices (BMPs) to minimize runoff and prevent construction pollutants from contacting stormwater.

Under this alternative, the Tjaarda Dairy, located on Site 6, would continue to operate pursuant to applicable water quality regulations (for example, regulations requiring the implementation of waste discharge requirements).

Furthermore, future development under this alternative would primarily consist of agricultural-related development and compatible uses and development. New agricultural uses and/or development could create additional demand for water resources and sustained pressure on the Kern County Subbasin and local water purveyors, such as the Semitropic Water Storage District. As analyzed in Section 4.10, *Hydrology and Water Quality*, the historical land use water demand of 1.43AF/acre is greater than the Subbasin sustainable yield target consumptive use rate of approximately 0.73 AF/acre. However, withdrawals of groundwater would be required to comply with allocations set forth in the recently adopted groundwater sustainability plans for the Kern County groundwater subbasins. Therefore, this alternative would result in greater water demand than the proposed Project, but compliance with existing regulations would ensure that this alternative does not result in potentially significant impacts regarding water demand.

Therefore, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in less than significant impacts related to hydrology and water quality. However, given that future development under this alternative would involve increased impervious surfaces, agricultural pollutants, and demand for groundwater supplies, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in greater impacts compared to the proposed Project.

Land Use and Planning

Under the General Plan/Specific Plan and Zoning Build-Out Alternative, the Project site would be developed in accordance with the land use standards and ministerial uses defined in the KCZO for the Exclusive Agriculture (A) District and applicable policies of the KCGP. Accordingly, development under this alternative would not conflict with any land use plan, policy, or regulation and/or physically divide an established community. Therefore, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in no impacts related to land use and planning and would result in less impacts compared to the proposed Project.

Mineral Resources

As described in Section 4.12, *Mineral Resources*, the Project site is not located on lands classified by the State Geologist as MRZ-1 or MRZ-2, and there are no active mines within the Project site. However, the Project site contains nine parcels with a KCGP Map Code designation of 8.4 (Mineral and Petroleum), and there are several oil and gas wells located within the Project site and mineral rights holders currently have active rights to mineral resources on several of the Tax Assessor's Parcels located within the Project site.

Under the General Plan/Specific Plan and Zoning Build-Out Alternative, the range of permitted uses could result in varying levels of impact on mineral resources, as some uses may impair the availability of mineral resources, while other uses may facilitate the exploration and production of mineral resources. For instance, permitted agricultural laboratories and product processing facilities could impede access to oil resources or hinder extraction operations, resulting in an adverse impact

and would be required to implement necessary measures in accordance with KCGP policies regarding mineral conservation. In contrast, other permitted uses, such as oil and gas exploration and production facilities, could result in beneficial impacts regarding access to mineral resources. Overall, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in less than significant or beneficial impacts regarding mineral resources and would result in less impacts compared to the proposed Project given its ability to accommodate greater oil and gas development than otherwise would occur with the proposed Project.

Noise

Under the General Plan/Specific Plan and Zoning Build-Out Alternative, the Project site would be developed in accordance with the land use standards and ministerial uses defined in the KCZO for the Exclusive Agriculture (A) District and applicable policies of the KCGP. Future permitted uses under this alternative may include crop cultivation, animal breeding and raising, animal product testing, plant product processing, and certain residential and commercial uses compatible with agricultural operations. These permitted uses have the potential to result in temporary and permanent noise impacts. Similar to the proposed Project, construction noise associated with this alternative would likely be attributed to site preparation and grading, construction of new facilities and roads, and use of heavy equipment and vehicles, such as tractors, loaders, cranes, bulldozers, and paving equipment. While specific details regarding potential noise impacts cannot be determined at this time, construction activities could result in noticeable noise increases and exceed noise threshold levels. Accordingly, future development may be required to implement site-specific noise reduction measures consistent with the KCGP Noise Element and, depending on the type of development and/or use, certain noise attenuation measures set forth in the Kern County Code of Ordinances (for example, Title 19, Chapter 19.98, Section 19.98.060.E, which involves noise attenuation measures for oil and gas development and uses).

The use of new roadways identified in the KCGP Circulation Element would introduce traffic-generated noise in areas of the Project site that currently experience little to no such noise and, consequently, has the potential to increase ambient noise levels within these areas. Therefore, this alternative has the potential to result in noise-related impacts which would not occur with the proposed Project and has the potential to be greater than operational-related noise impacts of the proposed Project. As such, noise impacts would be significant and unavoidable on a cumulative level with full buildout of this Alternative.

As discussed in Section 4.13, *Noise*, construction activities can generate ground-borne vibrations that may be perceptible to nearby individuals. However, ground-borne vibration typically attenuates rapidly with distance. The type of construction activities and associated potential to generate vibration that could be experienced off-site would be contingent on the specific ministerial uses and corresponding development activities that would be established at the Project site. Regardless, given that the nearest sensitive receptors are approximately 50 to 100 feet (at the closest points) from the Project site (Sites 5 and 6), the attenuation of ground-borne vibrations would substantially reduce vibration levels to insignificant levels. Additionally, unless a ministerial use involves relatively unusual operations (for example, pile driving and/or ongoing earthmoving activities), ministerial uses that could occur on the Project site are unlikely to involve major sources

of ground-borne vibrations which could be perceived off-site. Therefore, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in a less than significant impact regarding ground-borne vibration and would result in similar impacts to the proposed Project.

Public Services

Under the General Plan/Specific Plan and Zoning Build-Out Alternative, the Project site would be developed in accordance with the land use standards and ministerial uses defined in the KCZO for the Exclusive Agriculture (A) District and applicable policies of the KCGP. While the specific type and location of future development remains uncertain, implementation of this alternative has the potential to increase demand for fire protection and law enforcement services that may necessitate new or expanded government facilities. For example, construction activities may present new fire hazards or security risks, while operational activities may create a slight increase in population that would increase demands on services and warrant new or expanded government facilities. However, similar to the proposed Project, future development must comply with the Kern County Building Code and, by reference, California Building and Fire Codes, may require preparation of a Fire Safety Plan, and/or pay development impact fees to fund needed improvements to existing infrastructure to accommodate the new development.

As previously described, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in only minor population growth at the Project site. This increase would be attributable to the development of limited new housing (for example, single-family residences at rural densities and farmworker accommodations) and certain commercial facilities (for example, plant processing and oil and gas exploration facilities). While this slight increase may result in a marginal demand for public safety services related to fire protection and law enforcement, it would not be substantial enough to generate increased demand for other public services, including schools, libraries, or recreational facilities. Therefore, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in less than significant impacts related to public services and would result in similar impacts compared to the proposed Project.

Transportation

Under the General Plan/Specific Plan and Zoning Build-Out Alternative, the Project site would be developed in accordance with the land use standards and ministerial uses defined in the KCZO for the Exclusive Agriculture (A) District and the KCGP Circulation Element and applicable policies in other KCGP elements. Accordingly, development under this alternative would not conflict with any land use program, plan, ordinance, or policy addressing the circulation system. Unlike the proposed Project, this alternative would allow for the construction of future roadways identified in the Circulation Element that would be eliminated pursuant to the requested GPAs to accommodate proposed Project development. However, similar to the proposed Project, construction activities have the potential to temporarily degrade roadway operations below acceptable level of service (LOS) thresholds established in the KCGP Circulation Element. As such, future development may be required to implement Project-specific construction traffic measures consistent with the KCGP Circulation Element to ensure compliance with acceptable LOS thresholds.

With regard to consistency with CEQA Guidelines Section 15064.3, subdivision (b), permissible residential uses and new employment opportunities have the potential to generate a substantial increase in operational daily trips associated with commuter trips to work or shopping, taking children to school, driving to nearby towns, agricultural employee commuter trips, etc. As such, this alternative could result in greater vehicle miles traveled (VMT) impacts compared to the proposed Project.

With regard to geometric design hazards, all new roadways defined in the KCGP Circulation Element would be implemented in compliance with the County's Development Standards (for example, Division 1 – Streets) and any Encroachment Permit requirements from the Kern County Public Works Department Engineering, Surveying, and Permit Service's Department.

As described above, this alternative is not expected to result in substantial development or population growth that would impair emergency access to, from, or within the Project site. On the contrary, implementation of roadway reservations identified in the KCGP Circulation Element may enhance site connectivity and facilitate emergency access during an emergency event.

This alternative would facilitate the development of planned future roadways within the Project site, consistent with the General Plan Circulation Element, thereby improving emergency access. However, depending on the specific type and density of ministerial development that would occur, the General Plan/Specific Plan and Zoning Build-Out Alternative could result in greater VMT generation than the proposed Project, thereby resulting in a cumulatively considerable contribution to significant cumulative VMT impacts.

Tribal Cultural Resources

Under the General Plan/Specific Plan and Zoning Build-Out Alternative, the Project site would be developed in accordance with the land use standards and ministerial uses defined in the KCZO for the Exclusive Agriculture (A) District and applicable policies of the KCGP. While the specific type and location of future development under this alternative remains uncertain, the range of permitted uses could result in varying levels of impact on tribal cultural resources, as some uses may involve more substantial ground-disturbance than others. For example, certain ministerial uses, such as crop cultivation, are unlikely to encounter previously undisturbed soils containing tribal cultural resources and would likely result in a less than significant impact. On the contrary, other ministerial uses, such as development and uses associated with oil and gas production facilities, may involve more intensive ground-disturbance activities, including increased grading and excavation depths. Although future ministerial uses would be consistent with state and local policies, future development would not be subject to CEQA processes that would provide additional protection measures regarding tribal cultural resources. Therefore, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in greater impacts compared to the proposed Project and would result in a cumulatively considerable contribution to significant cumulative impacts.

Utilities and Service Systems

Under the General Plan/Specific Plan and Zoning Build-Out Alternative, the Project site would be developed in accordance with the land use standards and ministerial uses defined in the KCZO for the Exclusive Agriculture (A) District and applicable policies of the KCGP. Future permitted uses under this alternative may include crop cultivation, animal breeding and raising, animal product testing, plant product processing, and certain residential and commercial uses compatible with agricultural operations. Depending on the specific type and density of the proposed uses, such land uses could require the relocation or installation of new utility infrastructure, including water, wastewater, and stormwater systems which could result in greater environmental impacts than would occur from the proposed Project. However, individual projects that require new or altered utility infrastructures would be subject to local planning processes and regulations. These include, but are not limited to, demonstrating consistency with relevant General Plan policies and providing documentation, such as will-serve letters, to confirm that utility providers have the capacity and infrastructure to serve the development.

Further, as stated above, future development under this alternative would primarily consist of agricultural-related development and compatible uses and development. New agricultural uses and/or development could create additional demand for water resources and sustained pressure on the Kern County Subbasin and local water purveyors, such as the Semitropic Water Storage District. However, withdrawals of groundwater would be required to comply with allocations set forth in the recently adopted groundwater sustainability plans for the Kern County groundwater subbasins. Therefore, this alternative would result in greater water demand than the proposed Project, but compliance with existing regulations would ensure that this alternative does not result in potentially significant impacts regarding water demand.

Overall, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in greater impacts compared to the proposed Project.

Wildfire

As previously described, the Project site is within proximity to identified emergency evacuation routes associated with a potential Lake Isabella Dam failure. The Project site is located near I-5, which currently provides adequate access in the event of an emergency. The General Plan/Specific Plan and Zoning Build-Out Alternative is not anticipated to induce population growth that would substantially increase road usage, and, consequently, impair an emergency evacuation plan. On the contrary, implementation of the planned roadways identified in the KCGP Circulation Element may help facilitate evacuation efforts in the event of an emergency. Therefore, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in less than significant or beneficial impacts regarding emergency evacuation plans and would result in less impacts compared to the proposed Project.

As described in Section 4.18, *Wildfire*, the Project site does not exhibit environmental conditions, such as dense vegetation, prevailing winds, or steep topography, that would exacerbate the spread of wildfire or post-wildfire hazards. Furthermore, the Project site is not located in or near a High

or Very High Fire Hazard Severity Zone (FHSZ) or within a State Responsibility Area (SRA) and does not have a distant or recent history of wildfire occurrences. Further, ministerial uses that could be allowed on the Project site do not involve any unique features (for example, the introduction of substantial amounts of permanent residents) that could exacerbate wildfire risks and would be subject to applicable building and fire code requirements. Therefore, impacts regarding the spread of wildfire and post-wildfire hazards are considered less than significant and similar to the proposed Project.

Under the General Plan/Specific Plan and Zoning Build-Out Alternative, future permitted uses have the potential to require the installation or maintenance of infrastructure that could introduce new sources of wildfire ignition. For example, agricultural uses may introduce additional sources of vegetation that can serve as fuel, while potential future oil and gas facilities may require new infrastructure improvements that introduce heat sources. To address these potential impacts, future Project proponents may be required to implement mandatory and voluntary wildfire reduction strategies in accordance with the Kern County Fire Code and KCGP Safety Element policies.

Therefore, the General Plan/Specific Plan and Zoning Build-Out Alternative would result in less than significant impacts related to wildfires and would result in similar impacts compared to the proposed Project.

Comparative Impacts of Alternative 2

The General Plan/Specific Plan and Zoning Build-Out Alternative would avoid significant and unavoidable impacts regarding aesthetics (project and cumulative) and agriculture (project and cumulative) resources that would occur under the proposed Project. However, this alternative would result in potentially greater impacts to air quality, biological resources, cultural resources, energy, GHG emissions, hazards and hazardous materials, hydrology and water quality, noise (ground borne vibration), traffic-generated noise, groundwater consumption, and utilities and service systems. As such, cumulative considerable impacts regarding air quality and biological resources would remain. The remaining environmental issue areas would have similar or less impacts compared to the proposed Project.

As described in detail above, ministerial uses under this alternative would be primarily limited to agriculture and agricultural-compatible uses, such as rural residential and agriculture-related commercial uses. Therefore, the General Plan/Specific Plan and Zoning Build-Out Alternative would generally involve more intensive land uses, increased soil disturbance, and modest increases in population relative to the proposed Project. These changes could lead to increased impacts regarding the environmental issue areas previously identified.

Alternative 2's Relationship to the Project Objectives

The General Plan/Specific Plan and Zoning Build-Out Alternative either would not achieve any, or would achieve to a lesser degree, the proposed Project objectives listed above in Section 6.3, *Project Objectives*. For example, although certain renewable energy systems like accessory solar energy electrical generators and small wind energy systems are allowed ministerially on the Project

site, they would have less capacity than the solar energy production and storage facilities of the proposed Project and, consequently, would not be as effective as the proposed Project in furthering California's GHG reduction and renewable energy production goals.

6.7.3 Alternative 3—Reduced Acreage Alternative

Alternative 3, the Reduced Project Alternative, would involve a reduction in the size of the Project site to avoid impacts to resources located on and/or near the Buttonwillow Ecological Reserve that otherwise would occur with the development, operation, and decommissioning of facilities on Sites 5 and 6. Specifically, the Reduced Acreage Alternative would reduce the Project area by approximately 40 percent by omitting Site 5 (2,677 acres) and Site 6 (2,409 acres) and the corresponding solar energy production facility development on them. As such, the total Project area would be reduced by approximately 5,086 acres, from 11,983 to 6,892 acres. In addition, this alternative would reduce the proposed Project's total generation capacity by approximately 43 percent, from 2,000 MW to 1,143 MW, as well as reduce the proposed Project's energy storage capacity by 60 percent, from 16 GWh to 6.4 GWh. Given that Sites 5 and 6 would remain in their current state as active agriculture and undisturbed land, CUPs, GPAs, Farmland Security Zone and WALUC cancellations, or vacation of public access easements for Sites 5 and/or 6 would not be required. Sites 1 through 4 and Site 8 would be developed as described in Chapter 3, *Project Description*.

Environmental Impact Analysis

Aesthetics

Under the Reduced Acreage Alternative, the Project proponent would develop a reduced Project site of 6,893 acres and install solar facilities with a total generation capacity of up to 1.143 GW of renewable electrical energy.

As described in Section 4.1, *Aesthetics,* the Project site is not within the vicinity of a federal, state, or locally recognized scenic vista, and development of the Project site would not involve the removal, alteration, or change in scenic resources within a Designated or Eligible State Scenic Highway. Therefore, the Reduced Acreage Alternative would result in no impact regarding these environmental issues.

Despite the reduced Project site, the Reduced Acreage Alternative would still involve the development of new solar facilities on 6,897 acres of land. As such, this alternative would continue to degrade the visual character and quality of public views of the site and surrounding area. Similar to the proposed Project, the Reduced Acreage Alternative would require implementation of Mitigation Measures MM 4.1-1 through MM 4.1-7 to reduce impacts regarding visual character and quality. However, given that there are no feasible mitigation measures that can be implemented to maintain the existing agricultural character of the Project site, impacts would remain significant and unavoidable.

Furthermore, similar to the proposed Project, the Reduced Acreage Alternative would have potentially significant impacts regarding lighting and glare from solar panels and associated infrastructure. Therefore, this alternative would be required to implement Mitigation Measures MM 4.1-6 and MM 4.1-7, which would require the Project proponent to incorporate glare-reducing technologies and non-reflective materials. The Reduced Acreage Alternative would result in less than significant impacts regarding light and glare and would result in less impacts compared to the proposed Project.

The Reduced Acreage Alternative would result in less impacts regarding aesthetics compared to the proposed Project due to the smaller area and resulting reduction in development capacity; however, impacts regarding visual quality and character would remain significant and unavoidable. As such, this alternative would continue to make a cumulatively considerably contribution to a significant cumulative impact regarding aesthetics.

Agriculture

Under the Reduced Acreage Alternative, the Project proponent would develop a reduced Project site of 6,893 acres and install solar facilities with a total generation capacity of up to 1.143 GW of renewable electrical energy.

Although the overall development footprint would be reduced compared to the proposed Project, the Reduced Acreage Alternative would involve a substantial solar facility and associated infrastructure, thereby converting agricultural land to non-agricultural uses. Furthermore, the Reduced Acreage Alternative would require the cancellation of 6,371 acres from Farmland Security Zone and WALUCs. Therefore, although the Reduced Acreage Alternative would result in less impacts regarding agriculture compared to the proposed Project, impacts would remain significant and unavoidable. As such, this alternative would continue to make a cumulatively considerably contribution to a significant cumulative impact regarding agriculture.

Air Quality

Under the Reduced Acreage Alternative, the Project proponent would develop a reduced Project site of 6,893 acres and install solar facilities with a total generation capacity of up to 1,142 MW of renewable electrical energy. Although it would involve less construction activities and fewer emissions than the proposed Project, this alternative would emit air pollutants during proposed Project construction from the use of off-road construction equipment, operation of on-road vehicles, and fugitive dust generation during ground-disturbance activities. In addition, Project operations may result in emissions from on-road vehicular traffic and landscape equipment associated with ongoing maintenance activities. As with the proposed Project, the Reduced Acreage Alternative would comply with federal, state, and local regulations and programs, including but not limited to, SJVAPCD Applicable Permits and Applicable Rules, CARB's heavy-duty engine and on-road vehicle standards, and KCGP policies. This alternative also would involve implementation of Mitigation Measures MM 4.3-1 and MM 4.3-7 to ensure consistency with KCGP measures regarding construction-related emissions. Implementation of these mitigation measures would ensure the Reduced Acreage Alternative would not create Project-specific impacts associated with

conflict with applicable air quality plans or net increase in criteria pollutants (that is, $PM_{2.5}$, PM_{10}, and ozone).

Similar to the proposed Project, the Reduced Acreage Alternative would be subject to Regulation VIII, which is intended to reduce ambient concentrations of PM_{10} by requiring actions to prevent, reduce, or mitigate anthropogenic fugitive dust emissions, and consequently, reducing potential exposure to Valley Fever. Mitigation Measures MM 4.3-8 through MM 4.3-11 would be implemented to further reduce impacts associated with Valley Fever. Therefore, with the implementation of mitigation, impacts associated with the exposure of sensitive receptors to substantial toxic air contaminants (TACs) due to the Project-generated construction emissions would be less than significant.

Lastly, under this alternative, construction activities have the potential to emit odors within the Project site. However, construction and decommissioning equipment would not remain in one location for an extended period of time, odors would disperse rapidly, and construction equipment would be used in compliance with the California Code of Regulations (CCR), Title 13, Sections 2449(d)(3) and 2485, which minimizes the idling time.

Overall, the Reduced Acreage Alternative would result in less than significant, Project-specific impacts with mitigation regarding air quality and would result in less Project-specific impacts compared to the proposed Project. However, air emissions associated with the Reduced Acreage Alternative still have the potential to make a cumulatively considerable contribution to a significant cumulative impact involving air quality.

Biological Resources

As described in Section 4.4, *Biological Resources*, the proposed Project would result in direct and indirect impact on biological resources through habitat modification, habitat degradation, mortality of individuals, interference with reproductive success, and introduction of invasive species. Under the Reduced Acreage Alternative, the Project site would be reduced by approximately 40 percent, decreasing the development footprint from 11,983 acres to 6,897 acres. As such, a substantial portion of the original Project site would be omitted; thereby reducing the area where biological resources may be impacted. For example, this alternative would avoid impacts to resources located on and/or near the Buttonwillow Ecological Reserve that otherwise would occur with the development, operation, and decommissioning of facilities on Sites 5 and 6. Therefore, the Reduced Acreage Alternative would have less impacts regarding biological resources compared to the proposed Project.

However, despite the reduced development footprint, the Reduced Acreage Alternative still has the potential to adversely affect biological resources, including special-status plants and wildlife, aquatic resources and sensitive natural communities, and migratory wildlife, or conflict with applicable policies and ordinances. To address potential impacts, the Project proponent would be required to implement Mitigation Measures MM 4.4-1 through MM 4.4-25, as applicable and modified (reduced) in proportion to the actual impacts that would occur in comparison to the proposed Project.

Overall, the Reduced Acreage Alternative would result in less than significant, Project-specific impacts with mitigation regarding biological resources. However, similar to the proposed Project, the Reduced Acreage Alternative would make a cumulatively considerable contribution to significant cumulative impacts regarding biological resources.

Cultural Resources

As described in Section 4.5, *Cultural Resources*, there are various archaeological resources located within the Project site, including pre-Contact sites and historic-era resources. The Reduced Acreage Alternative would eliminate approximately 5,086 acres from the proposed Project footprint. This reduction would avoid direct impacts within Sites 5 and 6, thereby lessening potential adverse effects on cultural resources within the reduced Project area.

However, the Reduced Acreage Alternative would fully develop Sites 1 through 4 and Site 8, which would result in ground disturbance on approximately 6,897 acres of agriculture and undisturbed land. Therefore, this alternative has the potential to result in significant impacts regarding cultural resources and requires mitigation. Similar to the proposed Project, the Reduced Acreage Alternative would be subject to Mitigation Measures MM 4.5-1 through MM 4.5-5 (Section 4.5, *Cultural Resources*), which protects known cultural resource sites, requires sensitivity training for construction workers, and requires cultural monitoring during ground-disturbance activities. Additionally, Mitigation Measure MM 4.5-6 would be implemented, which identifies procedures for recording and treating human remains in the event of a discovery during construction.

Overall, the Reduced Acreage Alternative would result in less than significant impacts with mitigation regarding cultural resources. Furthermore, given the reduced development footprint, this alternative would result in less impacts compared to the proposed Project.

Energy

Under the Reduced Acreage Alternative, the Project area would be reduced by approximately 40 percent, decreasing the site from 11,987 acres to 6,893 acres. This alternative would reduce the proposed Project's total generation capacity by approximately 40 percent, decreasing capacity from 2 GW to 1.143 GW, and the total energy storage capacity by 60 percent, decreasing power from 16 GWh to 6.4 GWh.

Given the reduced development footprint, the energy demand required for construction and operational maintenance would be reduced compared to the proposed Project. However, the Reduced Acreage Alternative would result in greater impacts regarding long-term energy offsets due to the reduced generation and storage capacity.

Furthermore, as previously described, the Reduced Acreage Alternative would be consistent with federal, state, and local regulations and policies, including, but not limited to, SJVAPCD Applicable Permits and Applicable Rules, CARB's heavy-duty engine and on-road vehicle standards, and KCGP policies. As such, this alternative would not result in wasteful, inefficient, or unnecessary consumption of energy sources or conflict with applicable energy plans.

Geology and Soils

As described in Section 4.7, *Geology and Soils*, of this Draft EIR, the Project site is potentially susceptible to geologic hazards, including seismic ground-shaking, liquefaction, and expansive soils. As with the proposed Project, the Reduced Acreage Alternative would be implemented in accordance with the Kern County Building Code, which would reduce impacts to a less than significant level. Impacts would be further reduced with the implementation of Mitigation Measure MM 4.7-1, which requires the Project proponent to prepare a final engineering design-specific geotechnical study, which would identify recommended measures to minimize geologic hazards.

With regard to soil erosion and loss of topsoil, ground disturbance associated with project construction would potentially expose soils to the effects of wind and water erosion. The Reduced Acreage Alternative would be subject to Mitigation Measure MM 4.10-1, which requires the preparation and implementation of a SWPPP per the requirements of the NPDES Construction General Permit Program. The SWPPP would specify various types of BMPs, including erosion control measures, to prevent soil from moving off-site. The alternative would further adhere to all temporary erosion control measures required by the Kern County Grading Code (Chapter 17.28.140). This includes implementation of various measures designed to prevent erosion and control drainage on-site, thereby further preventing potential sedimentation. Compliance with these requirements would ensure that the alternative would not result in substantial soil erosion or topsoil. Impacts would be less than significant. Furthermore, compliance with Mitigation Measure MM 4.7-1 and performance standards within the Kern County Grading Code would ensure excessive grading does not occur.

Lastly, the Reduced Acreage Alternative would include the development of septic systems for the O&M buildings. The septic systems would be constructed to comply with applicable requirements that the Kern County Environmental Health Services Division enforces. The proposed septic systems are anticipated to be located away from surface drainages and protected from potential surface runoff, in accordance with Kern County laws, ordinances, regulations, and standards. The Project operator would be required to satisfy the permit requirements regarding design and siting of septic system and leach fields in accordance with Mitigation Measure MM 4.7-2.

Overall, the Reduced Acreage Alternative would result in less than significant impacts with mitigation regarding geology and soils. Furthermore, given the reduced development footprint, this alternative would result in less impacts compared to the proposed Project.

Greenhouse Gas Emissions

Under the Reduced Acreage Alternative, the Project area would be reduced by approximately 40 percent, decreasing the site from 11,987 acres to 6,893 acres. This alternative would reduce the proposed Project's total generation capacity by approximately 40 percent, decreasing capacity from 2,000 MW to 1,142 MW, and the total energy storage capacity by 60 percent, decreasing power from 16,000 MWh to 9,600 MWh. Therefore, while the Reduced Acreage Alternative would not conflict with applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions, this alternative would not produce GHG emission offsets to the extent that the proposed

Project would do so. Therefore, impacts regarding GHG emissions would be greater than that of the proposed projects, however GHG emissions would not exceed known SJVAPCD thresholds and remain less than significant on a project-specific and cumulative level.

Hazards and Hazardous Materials

Under the Reduced Acreage Alternative, the Project proponent would develop a reduced Project site of 6,893 acres and install solar facilities with a total generation capacity of up to 1,142 MW of renewable electrical energy. Similar to, but to a lesser degree than, the proposed Project, this alternative would require the routine use, transport, and disposal of hazardous materials that may create a significant hazard to the public or the environment, such as in the event of a spill. For example, the PV solar panels would include semiconductor or electrically conducting materials that are considered to be hazardous. Therefore, as with the proposed Project, the Reduced Acreage Alternative would be subject to Mitigation Measure MM 4.9-1, which requires the preparation of an HMBP, as applicable, pursuant to Article 1 and Article 2 of California HSC 6.95 and in accordance with Kern County Ordinance Code Section 8.04.030. Furthermore, Mitigation Measure MM 4.9-2 would still be required to minimize impacts related to the use of pesticides and herbicides.

With regard to emergency response and evacuation plans, the proposed Project would not result in significant impacts, primarily given that I-5 provides adequate access in the event of an emergency and the addition of 20 full-time equivalent (FTE) personnel would not create a significant increase in congestion or significantly worsen the service level at intersections on area roads. Therefore, given that the Reduced Acreage Alternative involves a smaller development footprint and potentially fewer FTE personnel, this alternative would also result in less than significant impacts.

Although the reduced Project site is not located within a high FHSZ, both the proposed Project and the Reduced Acreage Alternative would implement Mitigation Measure MM 4.14-1 **(**Section 4.14, *Public Services*), which requires the preparation and submittal of a Fire Safety Plan to the Kern County Fire Department for review and approval. The purpose of the Fire Safety Plan would be to eliminate causes of fire, prevent loss of life and property by fire, to comply with County and County Fire Protection District standards for solar facilities, and to comply with the Occupational Safety and Health Administration (OSHA) standard of fire prevention (29 Code of Federal Regulations [CFR] 1910.39).

Similar to the proposed Project, the Reduced Acreage Alternative would not result in features or conditions that could potentially provide habitat for vectors, such as moving earth that would consequently create retention basins and ponded water. Furthermore, this alternative would incorporate recycling and non-recycling receptacles to ensure proper waste management and not produce excessive waste, standing water, or other features that would attract nuisance pests or vectors.

As described in Section 4.9, *Hazards and Hazardous Materials*, of this Draft EIR, the reduced Project site is not located within 0.25-miles of a school; is not listed in environmental regulatory databases for hazardous materials sites pursuant to Government Code Section 65962.5; and is not situated within an area governed by the Kern County ALUCP.

Overall, the Reduced Acreage Alternative would result in less than significant impacts with mitigation regarding hazards and hazardous materials. Furthermore, given the reduced development footprint, this alternative would result in less impacts compared to the proposed Project.

Hydrology and Water Quality

Under the Reduced Acreage Alternative, the Project proponent would develop a reduced Project site of 6,893 acres and install solar facilities with a total generation capacity of up to 1,142 MW of renewable electrical energy. Site preparation, construction, and operational activities associated with this alternative could result in significant impacts on surface and groundwater quality. These impacts may arise from the discharge of pollutants—including pesticides, herbicides, automotive fluids, and petroleum products—or from the release of contaminants due to inundation of the Project site. In addition, ground disturbance and altered drainage patterns associated with this alternative may contribute to erosion and sedimentation, further impairing water quality.

To address potential water quality and soil erosion impacts, the Project proponent would be required to implement several mitigation measures. Specifically, per Mitigation Measure MM 4.10-1, the Project proponent would prepare and implement a SWPPP in accordance with NPDES Construction General Permit requirements. The SWPPP would incorporate BMPs to control soil erosion and prevent the discharge of construction-related pollutants that could adversely affect water quality. Additionally, Mitigation Measure MM 4.10-2 would require the Project proponent/operator to complete a hydrologic study and final drainage plan to minimize increases in runoff from the Project site. The Reduced Acreage Alternative would also implement Mitigation Measure MM 4.9-1, which requires preparation of a Hazardous Materials Business Plan (HMBP) to ensure the safe handling, storage, and cleanup of hazardous materials in the event of an accidental release. With implementation of these measures, the Reduced Acreage Alternative would not violate water quality standards or waste discharge requirements, nor would it substantially degrade surface or groundwater quality. Furthermore, the risk of a pollutant release due to a flooding event would be effectively minimized.

Under the Reduced Acreage Alternative, the Tjaarda Dairy, located on Site 6, would continue to operate subject to applicable water quality regulations (for example, regulations requiring the implementation of waste discharge requirements).

As discussed in Section 4.10, *Hydrology and Water Quality*, construction and operation of the proposed Project are not expected to substantially reduce groundwater supplies within the Kern County Subbasin or conflict with applicable water quality control or groundwater management plans. The Reduced Acreage Alternative would eliminate approximately 5,086 acres from the overall Project footprint. Existing agricultural operations that would remain on Sites 5 and 6 would

be required to comply with the groundwater allocations set forth in applicable groundwater sustainability plans of the Kern Groundwater Subbasins. Therefore, although groundwater usage would be greater with the Reduced Acreage Alternative as compared to the proposed Project, impacts associated with groundwater availability would be less than significant. Furthermore, the Project proponent would implement Mitigation Measure MM 4.10-2, as described above, to address potential impacts associated with increased impervious surfaces that may interfere with groundwater recharge opportunities.

As previously discussed, implementation of the Reduced Acreage Alternative would involve site grading and the introduction of new impervious surfaces, which could increase surface water runoff rates. This increase has the potential to contribute to on-site or off-site flooding and may exceed the capacity of existing or planned stormwater drainage infrastructure. To address potential impacts, the Reduced Acreage Alternative would be designed in accordance with the Kern County Public Works Department stormwater requirements and subject to Mitigation Measures MM 4.10-1 and MM 4.10-2. As such, the alternative would incorporate engineering recommendations that would properly control stormwater runoff on-site and incorporate design features that would be appropriately sized for storm events to minimize flooding and ensure adequate capacity.

Overall, the Reduced Acreage Alternative would result in less than significant impacts with mitigation regarding hydrology and water quality. Furthermore, this alternative would result in reduced impacts as compared to the proposed Project, with the exception of impacts regarding the availability of groundwater which would be greater with the Reduced Acreage Alternative due to agricultural operations that would remain on Sites 5 and 6.

Land Use and Planning

Under the Reduced Acreage Alternative, the Project proponent would develop a reduced Project site of 6,893 acres and install solar facilities with a total generation capacity of up to 1,142 MW of renewable electrical energy. While the reduced Project site consists of several single-family dwellings, as with the proposed Project, the Reduced Acreage Alternative would not divide an established community.

As described in Section 4.11, *Land Use and Planning*, the proposed Project would be consistent with applicable local policies and plans, including KCGP, KCZO, and WALUC policies, with the implementation of mitigation measures identified within **Table 4.11-3:** *Project Consistency with Local Planning Documents.* Due to its reduced development footprint, the Reduced Acreage Alternative would be expected to maintain consistency with applicable local land use plans and policies. Therefore, the Reduced Acreage Alternatives would result in less than significant impacts with mitigation and would result in less impacts compared to the proposed Project.

Mineral Resources

As described in Section 4.12, *Mineral Resources,* there are several oil and gas wells (plugged, cancelled, and one idle) located within the Project site and mineral rights holders that currently have active rights to mineral resources on several of the Tax Assessor's Parcels located within the Project site. As with the proposed Project, the Reduced Acreage Alternative would include a 10-

foot, no-build setback around the existing oil and gas wells for inspection and maintenance purposes. Furthermore, portions of the Project site along with access to said areas would be left undeveloped as drilling areas available to mineral rights holders from within the Project site. Furthermore, Mitigation Measure MM 4.12-1 requires the Project proponent to provide documentation from any minerals right holders who agree to allow development activities within areas that might affect their ability to exercise their mineral rights (for example, impede future drill sites). Therefore, the Reduced Acreage Alternative would result in less than significant, Project-specific impacts with mitigation regarding mineral resources. However, although the Reduced Acreage Alternative would have less potential than the proposed Project to impede access rights to subsurface mineral resources, the Reduced Acreage Alternative would make a cumulatively considerable contribution to significant cumulative impacts regarding access to mineral resources.

Noise

As described in Section 4.13, *Noise*, the proposed Project would result in temporary noise impacts generated by construction. The most substantial impacts were projected to occur at Sites 5 and 6, where the proximity to sensitive receptors could result in construction noise levels reaching up to 80 dBA L_{eq}. However, under the Reduced Acreage Alternative, Sites 5 and 6 have been removed from the Project footprint, thereby eliminating the locations where the highest noise impacts would have occurred. The next closest sensitive receptors would be situated approximately 1,500 feet and 1,900 feet from Sites 2 and 8, respectively. Given the substantial distance, the Reduced Acreage Alternative would result in substantially less impacts compared to the proposed Project.

However, when considering noise perceptibility at these sensitive receptors, construction activities are anticipated to increase noise levels from ranges of clearly noticeable to much louder. Furthermore, night-time construction activities under this alternative may still have the potential to exceed Federal Transit Authority (FTA) guidance of 70 dBA 8-hour L_{eq}. Therefore, the Reduced Acreage Alternative would be subject to Mitigation Measures MM 4.13-1 through MM 4.13-3 to reduce temporary construction noise impacts.

In addition, given the potential for operational noise from transformers and inverters to adversely affect sensitive receptors, this alternative would be subject to Mitigation Measure MM 4.13-4 to ensure that existing ambient noise level at the nearest off-site residential structure would not be exceeded by more than 5 dBA.

Lastly, similar to the proposed Project, the Reduced Acreage Alternative would not generate excessive ground-borne vibration or ground-borne noise levels. Therefore, the Reduced Acreage Alternative would result in less than significant impacts with mitigation regarding noise and vibration.

Overall, compared to the proposed Project, this alternative would result in substantially less impacts regarding noise and ground-borne vibration due to the removal of Sites 5 and 6, where the closest sensitive receptors were originally located.

Public Services

Under the Reduced Acreage Alternative, the Project proponent would develop a reduced Project site of 6,893 acres and install solar facilities with a total generation capacity of up to 1,142 MW of renewable electrical energy. Construction and operational activities associated with this alternative could result in incremental increases in demand for fire protection and law enforcement services. These increases may stem from the potential introduction of new fire hazards and the need for enhanced police presence to ensure public safety during both construction and ongoing operations. To address potential impacts, the Project proponent would be required to implement Mitigation Measure MM 4.14-1 that requires the preparation of a Fire Safety Plan consistent with 2022 CFC and Kern County Fire Code. Additionally, Mitigation Measure MM 4.14-2 would require the Project operator to pay a Kern County Cumulative Impact Charge (CIC) to financially support the provision of adequate public services and facilities should the facility continue benefiting from the existing commercial solar tax credit (Investment Tax Credit (ITC)).

Similar to the proposed Project, the presence of additional employees has very low potential to incrementally increase the demand for local public services and facilities, including recreational, healthcare, and educational resources. However, impacts related to the construction or expansion of public services may still occur. As such, the Project proponent would implement Mitigation Measure MM 4.14-2, as described above, to provide funding to County public services. Mitigation Measures MM 4.14-3 and MM 4.14-4 would continue to be implemented, as necessary.

Overall, the Reduced Acreage Alternative would result in less than significant impacts with mitigation regarding public services. Furthermore, given the reduced development footprint and fewer required employees, this alternative would result in less impacts as compared to the proposed Project.

Transportation

As discussed in Section 4.15, *Transportation*, construction activities associated with the proposed Project generally would not cause a roadway intersection to operate below the minimum acceptable LOS threshold of LOS D, as established in the KCGP Circulation Element. However, the Magnolia Avenue/7th Standard Road intersection is forecast to operate at LOS E during the PM peak hour during the construction phase. Under the Reduced Acreage Alternative, Sites 5 and 6 would be removed from the Project footprint, resulting in fewer construction-related vehicle trips through this intersection. As a result, the potential for LOS degradation at this location would be reduced under this alternative. To further reduce potential impacts at other intersections, the Project proponent would implement Mitigation Measure MM 4.15-1, which would incorporate specific measures to ensure peak hour construction worker vehicle limits are maintained during the AM and PM peak hours in order to maintain LOS D or better at the impacted intersections indicated by the Kern County Public Works Department. Additionally, the project proponent would prepare and implement a Construction Traffic Control Plan, as required by Mitigation Measure MM 4.15-2. Similar to the proposed Project, the Reduced Acreage Alternative would be consistent with other applicable circulation programs, plans, ordinances, and policies.

The proposed Project would not result in VMT-related impacts associated with construction, operation, or maintenance activities. The Reduced Acreage Alternative would develop only a portion of the Project site and would require fewer construction and operational employees. Therefore, the Reduced Acreage Alternative also would not result in VMT-related impacts.

The Reduced Acreage Alternative would not involve the construction or physical alteration of new or existing intersections involving a public roadway. However, as with the proposed Project, this alternative would involve the construction and use of new driveways from public roads to provide access to the sites that constitute the reduced Project site. Given that Sites 5 and 6 would be removed under this alternative, the Reduced Acreage Alternative would result in less impacts compared to the proposed Project, but still has the potential to create significant impacts associated with transportation hazards. To address the potential for increased transportation hazards, the Project proponent would be required to implement Mitigation Measure MM 4.15-2, as described above, which would reduce impacts associated with hazards from the use of oversized vehicles during construction and/or decommissioning activities.

With regard to emergency access, the proposed Project would not result in significant impacts. Similar to the proposed Project, the Reduced Acreage Alternative would have 20-foot-wide-minimum roadways around the perimeter of the solar arrays to provide adequate access for emergency vehicles. The roadways would also be designed in accordance with Kern County Public Works Department Development Standards and Kern County's Fire Code.

Overall, the Reduced Acreage Alternative would result in less than significant impacts with mitigation regarding transportation. Furthermore, given the reduced development footprint and fewer required employees, this alternative would result in less impacts compared to the proposed Project.

Tribal Cultural Resources

The Reduced Acreage Alternative would fully develop Sites 1 through 4 and Site 8, which would result in ground disturbance on approximately 6,897 acres of agricultural and undisturbed lands. Therefore, this alternative has the potential to result in significant impacts regarding tribal cultural resources which warrants mitigation. Similar to the proposed Project, the Reduced Acreage Alternative would implement Mitigation Measures MM 4.5-1 through MM 4.5-6 (Section 4.5, *Cultural Resources*), which protects known cultural resource sites, requires sensitivity training for construction workers, and requires tribal cultural monitoring during ground-disturbance activities. Therefore, the Reduced Acreage Alternative would have less than significant impacts with mitigation regarding tribal cultural resources. Furthermore, given the reduced development footprint, this alternative would result in less impacts compared to the proposed Project.

Utilities and Service Systems

Under the Reduced Acreage Alternative, the Project proponent would develop a reduced Project site of 6,893 acres, which constitutes an approximately 40 percent reduction in the proposed Project footprint. This alternative would result in a corresponding decrease in renewable energy infrastructure, including an estimated reduction of approximately 857 MW in solar capacity and

9,600 MWh in solar storage capacity. As a result of the smaller development area and reduced system capacity, construction-related activities and long-term operational demands on utilities and service systems would be proportionally lower than those anticipated under the proposed Project.

As detailed in Section 4.17, *Utilities and Service Systems*, the proposed Project would not necessitate the construction or relocation of new or expanded infrastructure related to water supply, wastewater treatment, stormwater management, electric power, natural gas, or telecommunications. Under the Reduced Acreage Alternative, development would occur on a smaller portion of the original Project site and, similarly, no new or relocated utility facilities or infrastructure would be required to support this alternative. With respect to stormwater drainage systems, the Project proponent would be required to implement Mitigation Measure MM 4.10-1 (Section 4.10, *Hydrology and Water Quality*), which requires the preparation of a SWPPP. The SWPPP must identify and implement BMPs, including measures to control the quality of stormwater runoff, thereby avoiding the need for construction or relocation of new or expanded stormwater drainage infrastructure under this alternative. Furthermore, the Reduced Acreage Alternative would not involve the construction or operation of microwave towers on Site 5, thereby further reducing impacts regarding telecommunications.

Water requirements for the proposed Project during construction and operation were determined in the water supply assessment (WSA) prepared for the proposed Project (Appendix I of this Draft EIR). The proposed Project would require a maximum of 3,500 acre-feet (AF) of water for construction over an up to 5-year period (1,000 acre-feet per year [AFY] at peak construction) and up to 7 AFY for 35 years for O&M. The total project water demand is an estimated 3,745 AF, or approximately 97 AFY. The WSA determined the proposed Project would have sufficient water supplies available to serve the proposed Project and reasonably foreseeable future development during normal, dry, and multiple dry years and impacts would be less than significant. Therefore, given the smaller development footprint under the Reduced Acreage Alternative, construction and operation of the solar facility under the Reduced Acreage Alternative would require less water than the solar facility under the proposed Project, and water supplies would be adequate to serve the Reduced Acreage Alternative. However, the areas excluded from the reduced Project site (that is, Sites 5 and 6) would remain as agricultural land and continue to rely on groundwater supplies to serve agricultural operations. Although the excluded agricultural operations would be required to comply with the water allocations set forth in applicable groundwater sustainability plans (GSPs), the Reduced Acreage Alternative would result in greater impacts regarding water supplies as compared to the proposed Project.

As with the proposed Project, the Reduced Acreage Alternative construction activities would involve use of commercial operator-provided portable restrooms and management of wastewater disposal. Wastewater would be transported to a treatment facility that is either operated by the contractor or under an existing contractual agreement, and which has sufficient capacity to accept and treat the wastewater generated by this alternative. Furthermore, similar to the proposed Project, this alternative would still include a single standard on-site septic tank and leach field system for each of the O&M building(s) the treatment and disposal of wastewater during operations.

As described in Section 4.17, *Utilities and Service Systems*, the proposed Project is not anticipated to generate solid waste volumes that would exceed the permitted capacity of the landfills serving the Project site, including the Shafter-Wasco Landfill and the Taft Landfill. However, to address impacts related to construction and demolition (C&D) waste, the Project proponent would be required to implement Mitigation Measure MM 4.17-2, which requires compliance with waste diversion and recycling requirements. By complying with federal, state, and local regulations and implementing Mitigation Measure MM 4.17-2, the Reduced Acreage Alternative would not generate solid waste that exceeds state or local standards or the capacity of local infrastructure. Additionally, the Reduced Acreage Alternative would not impair the attainment of solid waste reduction goals.

Overall, the Reduced Acreage Alternative would result in less than significant impacts regarding utilities and service systems. However, this alternative would continue water-intensive agricultural operations on approximately 1,294 acres of land, resulting in greater impacts compared to the proposed Project.

Wildfire

Under the Reduced Acreage Alternative, the Project proponent would develop a reduced Project site of 6,893 acres and install solar facilities with a total generation capacity of up to 1,142 MW of renewable electrical energy. As with the proposed Project, construction and operational activities associated with this alternative would not result in significant impacts regarding emergency response plans, emergency access, or evacuation plans, as described above. Specifically, this alternative would maintain the existing roadway network and provide 20-foot-wide-minimum roadways around the perimeter of the solar arrays. Additionally, Project-related traffic would not cause a significant increase in congestion or significantly worsen the existing service levels at intersections on area roads. However, to address temporary impacts associated with construction-related trips, the Reduced Acreage Alternative construction activities would be subject to a Construction Traffic Control Plan, in accordance with Mitigation Measure MM 4.15-2 (Section 4.15, *Transportation*). Additionally, the alternative would comply with applicable regulations, including the 2022 CFC, the Kern County Fire Code, and Fire Prevention Standard No. 503-507 for Solar Panels.

As described in Section 4.18, *Wildfire*, the Project site is not located in or near a High or Very High FHSZ or within a SRA. Additionally, the Project site consists of flat terrain that would not exacerbate the spread of wildfire. However, construction activities associated with this alternative would temporarily introduce ignition sources, such as spark or heat-generating tools, within non-native grasslands that could serve as vegetative fuels. Therefore, as with the proposed Project, the Reduced Acreage Alternative would be subject to Mitigation Measure MM 4.1-4 which requires the preparation of a Landscape Revegetation and Restoration Plan. Additionally, the alternative would be subject to the Kern County Fire Code that includes by reference the requirements of the 2022 CFC and 2021 IFC, and which would require consultation with the Kern County Fire Department to ensure all fire safety requirements are met.

With regard to wildfire hazards during operations, the alternative would involve the installation of various solar-related infrastructure, such as BESS, radio towers, and gen-tie lines, that have the potential to introduce ignition sources or exacerbate wildfire risk. However, the Reduced Acreage Alternative would be designed, constructed, and operated in accordance with applicable federal, state, and local regulations that would reduce potential impacts. For example, the BESS would be designed to conform with Kern County and National Fire Protection Association (NFPA) fire standard 855 for BESSs, as wells as have fire extinguishers and remotely controlled containers. Furthermore, the Project proponent would be required to implement various mitigation measures to reduce wildfire risk, including Mitigation Measure MM 4.1-4 which would ensure vegetation is properly cleared and restored, and Mitigation Measure MM 4.14-1 which requires the preparation of a Fire Stafey Plan consistent with the Kern County Fire Code and by reference the 2022 CFC and 2021 IFC. Therefore, construction and/or operation under this alternative would not exacerbate wildfire impacts.

Lastly, the Project site does not exhibit site characteristics that pose significant post-wildfire hazards, such as landslides or downslope flooding. Specifically, the Project site is relatively flat, is currently agricultural or undisturbed land, and does not consist of urban development and population that could be exposed to potential post-wildfire conditions. Furthermore, as previously stated, under the Reduced Acreage Alternative the Project proponent would be required to implement a SWPPP per Mitigation Measure MM 4.10-1, thereby further reducing the potential for on- or off-site flooding, erosion, and sedimentation.

Overall, the Reduced Acreage Alternative would result in less than significant, Project-specific impacts with mitigation regarding wildfire; however, the Reduced Acreage Alternative would make a cumulatively considerable contribution to significant cumulative impacts regarding wildfire. Although impacts resulting from the Reduced Acreage Alternative would be similar to those resulting from the proposed Project, given the reduced development footprint, the Reduced Acreage Alternative would result in proportionally less impacts as compared to the proposed Project.

Comparative Impacts of Alternative 3

Compared to the proposed Project, the Reduced Acreage Alternative would result in less impacts related to aesthetics, agriculture, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, public services, transportation, tribal cultural resources, utilities and service systems, and wildfires. Furthermore, removal of Sites 5 and 6 near the Buttonwillow Ecological Reserve would also reduce cumulative impacts regarding biological resources.

However, given that this alternative develops 6,893 acres of agricultural and undisturbed land, the Reduced Acreage Alternative would still have significant and unavoidable impacts related to aesthetics and visual resources (project and cumulative), agriculture (project and cumulative), air quality (cumulative only-construction), biological resources (cumulative only), and wildfire (cumulative only). Additionally, given the reduced electrical power generation and storage capacity, the Reduced Acreage Alternative would have greater impacts regarding energy and GHG

emissions. Lastly, this alternative would retain agricultural operations on Sites 5 and 6, which would potentially exacerbate impacts regarding water supplies.

Alternative 3's Relationship to the Applicant Submitted Project Objectives

The Reduced Acreage Alternative would achieve all the Project objectives listed above in Section 6.2, albeit to a lesser degree as compared to the proposed Project due to the reduction in the reduction in total solar energy generation and storage capacities.

6.7.4 Alternative 4—No Ground-Mounted Utility-Solar Development Alternative—Distributed Commercial and Industrial Rooftop Solar Only

Alternative 4, the No Ground-Mounted Utility-Solar Development Alternative, would involve the development of a number of geographically distributed small to medium solar PV systems (100 kWh to 1 MW) within existing developed areas, typically on the rooftops of commercial and industrial facilities situated throughout the valley region of Kern County. Under this alternative, no currently undeveloped land would be developed or altered.

Depending on the type of solar modules installed and the type of tracking equipment used (if any), a similar or greater amount of acreage (that is, greater than 11,983 acres of total rooftop area) may be required to attain the proposed Project's capacity of 2 GW of solar PV generating capacity and storage. Because of space or capital cost constraints, many rooftop solar PV systems would be fixed-axis systems or would not include the same type of sun-tracking equipment that would be installed under the proposed Project. Therefore, this alternative would not attain the same level of efficiency with respect to solar PV energy generation. Power generated by the distributed solar PV systems would typically be consumed on-site by the commercial or industrial facility without requiring the construction of new electrical substation or transmission facilities. Decommissioning of this alternative would not be required.

Environmental Impact Analysis

Aesthetics

Under the No Ground-Mounted Utility-Solar Development Alternative, solar installation would be installed within existing developed areas (for example, building rooftops) throughout the valley region of Kern County; however, the exact locations are not currently known. Therefore, scenic vistas could be in the vicinity of the locations where the solar PV systems would be installed. However, given the dispersed locations of the solar PV facilities and visual obstructions caused by existing development, implementation of the No Ground-Mounted Utility-Solar Development Alternative would have minimal potential to cause a substantial adverse effect on a scenic vista.

The installation of small to medium solar PV systems on developed parcels is unlikely to be visually obtrusive and readily noticeable from receptors at ground level. Although solar facilities may be visible from other vantage points, the presence of the components would not likely affect the visual character or quality of an area, as the solar PV systems would be visually compatible with the existing commercial and industrial development. An exception to this would be if solar facilities are proposed on historic resources, which could affect the historic character and integrity of the resources. Implementation of this alternative would require a qualified architectural historian to conduct historic surveys and investigations to evaluate the eligibility of potentially historic structures that are over 50 years old, as well as recommend either avoidance of such buildings or incorporation of design measures to minimize impacts regarding the aesthetic, character-defining qualities of historically significant structures.

Additionally, this alternative would retain agricultural and undisturbed land, which contributes to the overall character of the Project site. For this reason, the No Ground-Mounted Utility-Solar Development Alternative would eliminate the significant and unavoidable Project-level and cumulative impacts to visual quality that would occur under the proposed Project. As such, Mitigation Measures MM 4.1-1 through MM 4.1-4 (Section 4.1, *Aesthetics*) would not be required, but development would be subject to applicable development standards in the Kern County Zoning Ordinance.

Similar to the proposed Project, this alternative has the potential to introduce new sources of glare via the proposed solar PV systems. To address potential impacts, this alternative would be subject to Mitigation Measures MM 4.1-5 through MM 4.1-7 (Section 4.1, *Aesthetics*).

Overall, the No Ground-Mounted Utility-Solar Development Alternative would result in a less than significant impact with mitigation regarding aesthetics and would result in less impacts compared to the proposed Project. Additionally, this alternative would not make a cumulatively considerable contribution to a significant cumulative impact involving aesthetics.

Agriculture

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be installed within existing developed areas, typically on the rooftops of existing commercial and industrial facilities. Since the solar PV systems proposed for this alternative would be constructed in existing developed areas, this alternative would not create any changes in the existing environment that would directly or indirectly convert farmland or forest land to non-agricultural or non-forest uses. Therefore, the No Ground-Mounted Utility-Solar Development Alternative would result in no Project-specific impacts, or contributions to cumulative impacts, regarding agriculture and forestry resources and would result in less impacts compared to the proposed Project.

Air Quality

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be installed within existing developed areas, typically on the rooftops of existing commercial and industrial facilities. Under

this alternative, construction would be limited to the solar PV system installations and would not require ground-disturbance activities. Although the absence of ground-disturbance equipment under this alternative would reduce certain construction-related air quality impacts, the installation of solar panels, racking systems, and associated electrical equipment may still require a substantial number of truck trips. These trips would be dispersed across multiple locations, depending on the selected buildings, which could result in localized increases in emissions during the construction phase. However, construction activities would be temporary and must comply with SJVAPCD rules and BMPs, including applicable provisions defined in Mitigation Measure MM 4.3-1 (Section 4.3, *Air Quality*). Given that this alternative is unlikely to require grading, Mitigation Measures MM 4.3-2, MM 4.3-4, and MM 4.3-5 (Section 4.3, *Air Quality*) would not be required.

Additionally, emissions associated with O&M of the rooftop solar components would be similar to that of the proposed Project and would be insignificant. Therefore, the No Ground-Mounted Utility-Solar Development Alternative would result in less than significant impacts with mitigation regarding air quality and would result in less impacts compared to the proposed Project. However, air emissions from construction, operation, and maintenance may still make a cumulatively considerable contribution to a significant cumulative impact.

Biological Resources

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be installed within existing developed areas, typically on the rooftops of existing commercial and industrial facilities. As such, this alternative would likely not disturb any land or remove habitat for special-status plants and wildlife or have a substantial adverse effect on any riparian habitat. However, Mitigation Measure MM 4.4-12 (Section 4.4, *Biological Resources*) would be implemented to require pre-activity surveys for nesting birds that may be present on applicable rooftops and vegetation (for example, trees in landscaping) that could be located within proximity to construction sites. The remaining mitigation measures would not be required. Therefore, the No Ground-Mounted Utility-Solar Development Alternative would result in less than significant impacts with mitigation regarding biological resources and would result in less impacts as compared to the proposed Project. Furthermore, unlike the proposed Project, this alternative would not make a cumulatively considerable contribution to significant cumulative impacts involving special-status species, sensitive natural communities, and wildlife movement.

Cultural Resources

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be installed within existing developed areas, typically on the rooftops of existing commercial and industrial facilities. As such, grading activities are unlikely to be required and ground-disturbance activities are unlikely to occur in previously undisturbed soils that have the potential to exhibit subsurface resources or human remains. Therefore, Mitigation Measures MM 4.5-1 through MM 4.5-6 (Section 4.5, *Cultural Resources)* would not be required.

As previously described, if rooftop solar systems were proposed on historic sites (for example, on building rooftops), this alternative could affect the historic character and integrity of these sites, as well as the character and views of historical resources. However, implementation of this alternative would require a qualified architectural historian to conduct historic surveys and investigations to evaluate the eligibility of potentially historic structures that are over 50 years old, as well as recommend either avoidance of such buildings or incorporation of design measures to minimize impacts on historic integrity of historically significant structures. In the case of eligible historical resources, design measures must be in accordance with the Secretary of the Interior's standards and the impact must not affect the eligibility of such resources. Therefore, the No Ground-Mounted Utility-Solar Development Alternative would result in less than significant impacts with mitigation regarding cultural resources and would result in less impacts compared to the proposed Project.

Energy

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be installed within existing developed areas, typically on the rooftops of existing commercial and industrial facilities. As previously described, construction under this alternative may require a substantial number of truck trips to transport and install the solar PV systems. However, construction would be temporary and would implement BMPs, including applicable provisions defined in Mitigation Measure MM 4.3-1 (Section 4.3, *Air Quality*), to avoid inefficient or unnecessary use of energy sources (for example, idling time limited to five minutes). Furthermore, this alternative would not require the use of off-road construction equipment and would require negligible amounts of energy for the solar PV installation process. Therefore, this alternative would not result in wasteful, inefficient, or unnecessary consumption of energy sources or conflict with applicable energy plans.

However, this alternative does not include sun-tracking solar PV systems or a battery energy storage component. As a result, it would yield lower energy generation efficiency and lack storage capabilities, with all energy consumed on-site rather than distributed to the grid. Consequently, the No Ground-Mounted Utility-Solar Development Alternative would result in a less than significant impact with respect to overall energy generation, but would lead to greater impacts in terms of energy offsets due to reduced efficiency and the absence of storage capacity.

Geology and Soils

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be installed within existing developed areas, typically on the rooftops of existing commercial and industrial facilities. This alternative is unlikely to involve substantial structural modifications or grading, and all development would be required to comply with the Kern County Building Ordinance. As such, this alternative would minimize the potential to expose people or structures to geologic hazards, namely adverse effects involving: rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, and landslides; substantial soil erosion or loss of topsoil; on-site or off-site landslides; expansive soil; or destruction of a unique paleontological resource or unique geologic feature. Consequently, this alternative would not require the implementation of Mitigation

Measures MM 4.7-1 through MM 4.7-5 (Section 4.7, *Geology and Soils)* and MM 4.10-1 (Section 4.10, *Hydrology and Water Quality)*. Therefore, the No Ground-Mounted Utility-Solar Development Alternative would result in less than significant impacts regarding geology and soils and would result in less impacts compared to the proposed Project.

Greenhouse Gas Emissions

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be installed within existing developed areas, typically on the rooftops of existing commercial and industrial facilities. As previously described, construction under this alternative may require a significant number of truck trips to transport and install the solar PV systems. However, construction would be temporary and would incorporate BMPs to minimize GHG emissions associated with construction vehicles (for example, idling time limited to five minutes). Furthermore, this alternative would not require off-road construction equipment. Similarly, operation under this alternative would not generate substantial GHG emissions. Therefore, the No Ground-Mounted Utility-Solar Development Alternative would not generate substantial quantities of GHG emissions that would adversely affect the environment or conflict with applicable GHG emission reduction plans, policies, or regulations.

However, this alternative does not include sun-tracking solar PV systems or a battery energy storage component. As a result, it would yield lower energy generation efficiency and lack storage capabilities that would result in lower GHG emission offset potential as compared to the proposed Project. Therefore, while the No Ground-Mounted Utility-Solar Development Alternative would not conflict with applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions, this alternative would result in greater impacts regarding lower GHG emission offsets as compared to the proposed Project.

Hazards and Hazardous Materials

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be installed within existing developed areas, typically on the rooftops of existing commercial and industrial facilities. Although this alternative would involve fewer hazardous materials than the proposed Project, it would still require the use, handling, storage, and disposal of such substances. These activities could pose risks to public health or the environment, including the potential for accidental releases. Therefore, to address these impacts, the No Ground-Mounted Utility-Solar Development Alternative would implement Mitigation Measure MM 4.9-1 (Section 4.9*, Hazards and Hazardous Materials*), which requires the preparation of a HMBP in accordance with the California HSC to avoid and minimize impacts in the event of a spill. Given that this alternative would not involve the use of herbicides, Mitigation Measure MM 4.9-2 (Section 4.9*, Hazards and Hazardous Materials*), would not be required.

While it is unknown where the distributed solar PV systems would be located within the valley region of Kern County, the No Ground-Mounted Utility-Solar Development Alternative would be required to comply with applicable requirements established or governed by an ALUCP, if solar energy systems are proposed within an area that is subject to an ALUCP.

In regard to wildland fires, while the alternative would be located in urbanized areas and would not involve a battery energy storage component, the numerous power lines involved in this alternative have the potential to introduce ignition sources and associated fire hazards. To address these impacts, the alternative would implement Mitigation Measure MM 4.14-1 (Section 4.14, *Public Services*), which requires the preparation and implementation of a Fire Safety Plan to reduce fire hazards and ensure compliance with County standards.

Overall, the No Ground-Mounted Utility-Solar Development Alternative would result in less than significant impacts related to hazards and hazardous materials and would result in less impacts compared to the proposed Project.

Hydrology and Water Quality

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be installed within existing developed areas, typically on the rooftops of existing commercial and industrial facilities. As such, this alternative is unlikely to involve grading or other substantial ground-disturbance activities that could degrade surface or groundwater quality. Consequently, Mitigation Measure MM 4.10-1 (Section 4.10, *Hydrology and Water Quality*), which requires compliance with an NPDES Construction General Permit, would not be implemented. Furthermore, as described above, this alternative would adhere to Mitigation Measure MM 4.9-1 (Section 4.9, *Hazards and Hazardous Materials)*, which requires the preparation of a HMBP to avoid and minimize impacts in the event of a spill, including impacts on surface and groundwater quality.

With regard to existing drainage patterns, as small to medium solar PV systems would be installed in existing, urban, and developed areas, it is unlikely that they would substantially increase impervious areas or involve other development which could adversely affect drainage patterns and/or flow paths. Therefore, the preparation of a hydrologic study and final drainage plan, per Mitigation Measure MM 4.10-2 (Section 4.10, *Hydrology and Water Quality*) would not be required.

Kern County is located well inland and far from the ocean or any enclosed or semi-enclosed water body. Due to this geographic context, the region is not susceptible to tsunami or seiche hazards, which are typically associated with coastal or shoreline environments. As a result, impacts regarding hydrologic hazards would be less than significant under this alternative.

Compared to the proposed Project, the water demand associated with this alternative would be substantially lower, primarily limited to routine maintenance such as panel cleaning. This reduced water usage would not place a significant burden on local water resources, including the Kern County Subbasin, which serves as a critical groundwater supply for the region. Therefore, this

alternative would not substantially contribute to groundwater overdraft or long-term depletion and impacts to groundwater supplies would be less than significant.

Under the No Ground-Mounted Utility-Solar Development, the Tjaarda Dairy, located on Site 6, would continue to operate subject to applicable water quality regulations (for example, regulations requiring the implementation of waste discharge requirements).

Therefore, the No Ground-Mounted Utility-Solar Development Alternative would result in less than significant impacts regarding hydrology and water quality and would result in less impacts as compared to the proposed Project.

Land Use and Planning

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be installed within existing developed areas, typically on the rooftops of existing commercial and industrial facilities. Under this alternative, there would be no CUPs, GPAs, SPAs, Farmland Security Zone and WALUC cancellations, Public Access Easement Vacations would be required. The No Ground-Mounted Utility-Solar Development Alternative would also achieve the County's goals and policies related to accommodating renewable energy facilities. However, the placement of solar panels on other structures throughout the region may result in unknown entitlement requirements, depending on the project location, zoning, land use, and potential environmental impacts on the site and surrounding areas. Nonetheless, to allow such development, the Project proponent would be required to comply with the specific entitlements needed to construct solar PV systems consistent with this alternative. The No Ground-Mounted Utility-Solar Development Alternative would result in less than significant impacts related to land use and planning would result in less impacts compared to the proposed Project.

Mineral Resources

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be installed within existing developed areas, typically on the rooftops of existing commercial and industrial facilities. Furthermore, this alternative would not involve ground-disturbance activities that may directly or indirectly result in the loss of mineral resources and, therefore, Mitigation Measure MM 4.12-1 (Section 4.12, *Mineral Resources)* would not be required. Therefore, the No Ground-Mounted Utility-Solar Development Alternative would result in less than significant impacts related to mineral resources and would result in less impacts compared to the proposed Project.

Noise

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be installed within existing developed areas, typically on the rooftops of existing commercial and industrial facilities. Given that this alternative would occur in developed areas and within proximity to sensitive receptors (for example, residential uses or hospitals), noise related to construction activities would likely impact sensitive receptors. To address such impacts, Mitigation Measure MM 4.13-1 (Section 4.13, *Noise*) would be implemented to reduce the short-term construction noise impacts. In regard to operational noise, the dispersed, relatively small scale (when compared to the proposed, utility-scale solar facility) solar PV systems are unlikely to include noise-generating components that could cause ambient noise levels to exceed maximum acceptable standards, and operational noise would be less than the operational noise that the proposed Project would generate.

The No Ground-Mounted Utility-Solar Development Alternative is unlikely to involve the use of vibratory rollers or other construction equipment which can produce substantial ground-borne vibration levels detectable off-site. Therefore, it is likely that construction activities would produce significant vibration-related impacts. In regard to operation, this alternative would require regular maintenance trucks and panel washing activities. The level of vibration would not exceed County thresholds or have the potential to damage historic buildings, which are more susceptible to vibration damage. Therefore, the No Ground-Mounted Utility-Solar Development Alternative would result in less than significant impacts with mitigation and would result in greater impacts compared to the proposed Project, given that noise-generating construction activities would likely occur within proximity to a greater number of sensitive receptors as compared to the proposed Project.

Public Services

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be installed within existing developed areas, typically on the rooftops of existing commercial and industrial facilities. With regard to fire protection, it is expected that solar PV systems would be installed in more urbanized areas. However, due to the numerous power lines that would be required to harness the distributed solar panel energy, this alternative could exacerbate fire risks. As such, similar to the proposed Project, Mitigation Measure MM 4.14-1 (Section 4.14, *Public Services*) would be implemented to reduce fire risks under this alternative. Furthermore, this alternative would also implement Mitigation Measure MM 4.14-2 (Section 4.14, *Public Services*) which would require the project operator to pay Kern County development impact fees to compensate for any permanent impacts to fire protection services and facilities resulting from the operation of this alternative. As such, impacts to fire protection would be less than significant with mitigation and have similar impacts compared to the proposed Project.

With regard to police protection, as the proposed small to medium solar PV systems would be installed in more urbanized areas on existing buildings, it is unlikely that construction and operation of the No Ground-Mounted Utility-Solar Development Alternative would be as visible, attract

attention, and result in criminal activity, as compared to the proposed Project. Similar to the proposed Project, this alternative would increase traffic with truck trips during construction and routine maintenance during operation of this alternative. However, the additional volume of trips during construction and operation would be minimal and would not likely have a significant and adverse effect on the KCSO protective service provision or California Highway Patrol's ability to patrol the highways. Therefore, impacts related to police protection would be less than significant and have less impacts compared to the proposed Project.

The No Ground-Mounted Utility-Solar Development Alternative would not result in substantial population growth that would increase demand for schools, libraries, and/or other government facilities. Therefore, the No Ground-Mounted Utility-Solar Development Alternative would result in less than significant impacts with mitigation regarding public services and would result in less impacts to public services as compared to the proposed Project.

Transportation

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be installed within existing developed areas, typically on the rooftops of existing commercial and industrial facilities. Similar to the proposed Project, implementation of this alternative would necessitate vehicular trips during the construction phase to facilitate the transport and installation of solar panels. Due to the distributed locations of the existing facilities, construction-related trips would be more geographically dispersed compared to the proposed Project, thereby reducing localized impacts on adjacent roadways. Therefore, Mitigation Measure MM 14.5-1 (Section 4.15, *Transportation*) would not be required.

During the operational phase, this alternative would also involve routine vehicular trips for maintenance and monitoring activities, consistent with those anticipated under the proposed Project. However, these operational trips would likewise be dispersed across a broader area and are not expected to result in adverse effects on traffic volumes, circulation patterns, or roadway configurations. As such, Mitigation Measure MM 14.5-2 (Section 4.15, *Transportation*) would not be required. This alternative would not conflict with any applicable transportation-related program, plan, ordinance, or policy addressing the circulation system.

With regard to consistency with CEQA Guidelines Section 15064.3(b), the No Ground-Mounted Utility-Solar Development Alternative would not increase vehicle trips or distances for the workforce already occupying the buildings that host the rooftop panels. There would be some increase in vehicle trips, and thus VMT, to perform occasional maintenance activities, unless those were to be performed by on-site workers. Therefore, impacts related to VMT would be less than significant.

Therefore, as described above, the No Ground-Mounted Utility-Solar Development Alternative would result in less than significant impacts regarding transportation and traffic and would result in less impacts compared to the proposed Project.

Tribal Cultural Resources

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be installed within existing developed areas, typically on the rooftops of existing commercial and industrial facilities. As such, grading activities are unlikely to be required and ground-disturbance activities are unlikely to occur in previously undisturbed soils that have the potential to exhibit subsurface tribal cultural resources. Therefore, Mitigation Measures MM 4.5-1 through MM 4.5-6 (Section 4.5, *Cultural Resources)* would not be required.

Regardless, prior to construction of this alternative, the Native American Heritage Commission would be contacted for a search of the Sacred Land Files for the No Ground-Mounted Utility-Solar Development Alternative construction area. In addition, the County would conduct additional consultation with California Native American tribes on the County's Master List for Assembly Bill (AB) 52, apprising them of the alternative project description. Should it be determined that potential impacts exist, this alternative would incorporate appropriate mitigation measures to avoid or re-design the project in effort to protect and preserve any tribal cultural resources.

Therefore, the No Ground-Mounted Utility-Solar Development Alternative would result in less than significant tribal cultural resources impacts with mitigation and would result in less impacts compared to the proposed Project.

Utilities and Service Systems

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be installed within existing developed areas, typically on the rooftops of existing commercial and industrial facilities. Construction and operational activities under this alternative are not anticipated to substantially increase demands on existing utility systems. Therefore, given that the proposed alternative sites are already served by adequate infrastructure, it is not anticipated that construction or expansion of utility systems would be required to support implementation of the alternative. Specifically, with regard to water supplies, the No Ground-Mounted Utility-Solar Development Alternative's water demand would be substantially lower, and primarily limited to routine maintenance such as panel cleaning. However, the original Project site would remain as agricultural land and continue to rely on groundwater supplies to serve agricultural operations. Although groundwater extractions for agricultural operations must be consistent with applicable Kern County Subbasin GSPs, the No Ground-Mounted Utility-Solar Development Alternative would result in greater impacts regarding water supplies compared to the proposed Project.

Furthermore, it is anticipated that wastewater and solid waste generation associated with this alternative would be similar to the proposed Project due to the similar number of employees required for maintenance of the solar panels. This alternative would require implementation of Mitigation Measure MM 4.17.2 (Section 4.17, *Utilities and Service Systems*), which would reduce impacts related to solid waste.

Overall, the No Ground-Mounted Utility-Solar Development Alternative would result in less than significant impacts with mitigation regarding utilities and service systems. This alternative would primarily result in less impacts compared to the proposed Project, except for impacts regarding water supplies. As previously described, the continuation of water-intensive agricultural operations on the original Project site would result in greater impacts compared to the proposed Project.

Wildfire

Under the No Ground-Mounted Utility-Solar Development Alternative, a number of geographically distributed small to medium solar PV systems would be installed within existing developed areas, typically on the rooftops of existing commercial and industrial facilities. While the alternative would be located in urbanized areas and would not involve a battery energy storage component, the numerous power lines have the potential to introduce ignition sources and associated fire hazards. To address these impacts, the alternative would implement Mitigation Measure MM 4.14-1 (Section 4.14, *Public Services*), which requires the preparation and implementation of a Fire Safety Plan to reduce fire hazards and ensure compliance with County standards.

Given the location of solar PV systems on existing developed sites in urban areas, development of the No Ground-Mounted Utility-Solar Development Alternative is unlikely to require grading or other substantial ground-disturbance activities which could substantially alter drainage areas. As such, the No Ground-Mounted Utility-Solar Development Alternative would not expose people or structures to post-wildfire risks, including downslope flooding or landslides.

Therefore, the No Ground-Mounted Utility-Solar Development Alternative would result in less than significant, wildfire-related impacts with mitigation and would result in less impacts compared to the proposed Project.

Comparative Impacts of Alternative 4

Compared to the proposed Project, the No Ground-Mounted Utility-Solar Development Alternative would result in less impacts related to aesthetics, agriculture, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, public services, transportation, tribal cultural resources, utilities and service systems, and wildfires. Specifically, this alternative would avoid significant and unavoidable impacts related to aesthetics and visual resources (project and cumulative), agricultural resources (project and cumulative), air quality (cumulative only-construction), biological resources (cumulative only), mineral resources (cumulative only), and wildfire (cumulative only) that would occur under the proposed Project.

However, the No Ground-Mounted Utility-Solar Development Alternative has the potential to result in greater construction noise-related impacts as compared to the proposed Project, depending on the proposed locations of the solar PV systems in relation to noise-sensitive receptors. Further, given that this alternative does not include sun-tracking solar PV systems or a battery energy

storage component, the No Ground-Mounted Utility-Solar Development Alternative would result in greater impacts regarding energy and GHG emissions.

Alternative 4's Relationship to the Applicant Submitted Project Objectives

The No Ground-Mounted Utility-Solar Development Alternative would partially fulfill the objectives outlined in Section 6.2, *Project Objectives*. This alternative would involve the installation of small to medium scale PV solar facilities, which would contribute to the generation of renewable energy and support the County's broader goals for solar energy development and GHG reduction.

However, given that the solar facilities would be decentralized by being located on existing buildings, the energy generation capacity would be significantly lower than that of the proposed Project. Additionally, the use of fixed-axis systems, as opposed to tracking systems, would limit overall efficiency and energy yield. The absence of a centralized energy storage component further constrains the ability of this alternative to provide consistent and reliable power, particularly during peak demand periods or when solar generation is low. Additionally, there are some drawbacks to this alternative that include, but are not limited to, those listed below.

- Up to 16,000 MWh of energy storage would not be included, and the alternative would not provide a new source of energy storage that assists the State in achieving or exceeding its energy storage mandate.
- The system would not likely be built out within a timeframe that would be similar to that of the project.
- Given the distributed features of such a network of facilities, construction, management, and maintenance would not be as efficient, and would be less economically viable.
- The Project proponent does not have immediate control or access to potential urban sites that could accommodate facilities to generate the solar power.
- A distributed system on the scale of the project would be cost-prohibitive to implement due to reduced cost efficiency of distributed solar.

This alternative theoretically has the potential to generate up to 2 GW of electricity, but the electricity would be used on the sites generating the power and would not achieve the proposed Project objective of assisting California load-serving entities in meeting their obligations under California's RPS Program.

6.7.5 Alternative 5— Non-Williamson Act and Farmland Security Zone Parcels Alternative

Alternative 5, the Non-Williamson Act and Farmland Security Zone Parcels Alternative, would reduce the Project area by omitting all parcels under currently active Farmland Security Zone and WALUCs from the development footprint. (See Chapter 3.0, *Project Description*, **Figure 3-8:** *Williamson Act Land Use Cancellations*, for a map of the areas within the Project site that are subject to Williamson Act and Farmland Security Zone Contracts.) Overall, this alternative would reduce the Project site by approximately 90 percent. The extent of reduction for each individual Project site would vary, depending on the number of parcels, parcel sizes, and the Farmland Security Zone and WALUC status. Site-specific reductions are anticipated to range from approximately 68 percent to as much as 100 percent. Sites 3, 4, and 5 would be completely removed from the Project site. **Table 6-2:** P*roject Area Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative*, summarizes the reduction in Project area by site.

Table 6-22: Project Area Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative

	Total Acres (Original Size)	WALUC Acres	Alternative 5— Non-WALUC/FSZC Acres	Site Reduction Percentage
Site 1	2,289	2,071	218	90
Site 2	543	403	140	74
Site 3	644	644	0	100
Site 4	395	395	0	100
Site 5	2,678	2,678	0	100
Site 6	2,409	1,641	768	68
Site 8	3,025	2,858	167	94
Total	**11,983**	**10,689**	**1,294**	**89**

Key: WALUC = Williamson Act Land Use Contract; FSZC = Farmland Security Zone Contract

Overall, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would have a combined total solar generation capacity of approximately 215 MW and solar storage capacity of approximately 1,728 MWh (1.728 GWh). As such, this alternative would reduce the total solar generation and storage capacity by approximately 1,784 MW (1.784 GWh) and 14,272 MWh (14.272 GWh), respectively. The Non-Williamson Act and Farmland Security Zone Parcels Alternative would eliminate the need for WALUC and Farmland Security Zone cancellations. However, the remaining 1,294 acres would be developed with facilities similar to, yet at a substantially reduced scale as, those described in Chapter 3, *Project Description*, and would still involve discretionary entitlements and approvals, including CUPs to allow the facilities, GPAs and an SPA to remove future road reservations, and public access easement vacations.

Environmental Impact Analysis

Aesthetics

Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative, the Project site would be reduced from 11,983 acres to 1,294 acres by excluding all parcels currently under active WALUC from the development footprint.

As described in Section 4.1, *Aesthetics,* the Project site is not within the vicinity of a federal, state, or locally recognized scenic vista, and the proposed Project would not involve the removal, alteration, or change in scenic resources within a Designated or Eligible State Scenic Highway. Therefore, the Non-Williamson Act and Farmland Security Zone Parcels Alternative also would not result in an impact regarding these environmental issues.

However, despite the reduction of the Project site by approximately 90 percent, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would involve development of 1,294 acres of agricultural and undisturbed land. As such, this alternative would degrade the visual character and quality of public views of the site and surrounding area. Similar to the proposed Project, construction activities would involve construction equipment and activities that would create a noticeable contrast when viewed in the context of off-site agricultural lands. Although this alternative would reduce impacts along I-5 and certain local roads, such as 7th Standard Road and Brandt Road, the installation of solar facilities on 1,294 acres of land would continue to create a visual contrast with the agricultural valley landscape. Therefore, similar to the proposed Project, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be subject to Mitigation Measures MM 4.1-1 through MM 4.1-5 to reduce impacts regarding visual character and quality. However, given that there are no feasible mitigation measures that can be implemented to maintain the existing agricultural character of the Project site, impacts would be significant and unavoidable.

Furthermore, similar to the proposed Project, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would have potentially significant impacts regarding lighting and glare from solar panels and associated infrastructure. Therefore, this alternative would be required to implement Mitigation Measures MM 4.1-6 and MM 4.1-7, which would require the Project proponent to incorporate glare-reducing technologies and non-reflective materials. The Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in less than significant light and glare impacts after mitigation and less impacts compared to the proposed Project.

Overall, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in substantially less impacts regarding aesthetics compared to the proposed Project due to the reduced Project site; however, impacts regarding visual quality and character would remain significant and unavoidable. As such, this alternative would still make a cumulatively considerable contribution to a significant cumulative impact involving aesthetics.

Agriculture

Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative, the Project proponent would develop a reduced Project site of 1,294 acres and install a solar facility with a total generation capacity of up to 216 MW of renewable electrical energy. This alternative would preserve approximately 10,688 acres of agricultural land under active Farmland Security Zone and WALUC. However, although the Non-Williamson Act and Farmland Security Zone Parcels Alternative would retain approximately 90 percent of the original Project site for agricultural use, this alternative would still develop a solar facility on approximately 1,294 acres of agricultural land. As with the proposed Project, there are no feasible mitigation measures to address these impacts. Therefore, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in substantially less impacts compared to the proposed Project but would still result in significant and unavoidable impacts regarding agriculture. As such, this alternative would still make a cumulatively considerable contribution to a significant cumulative impact involving agriculture.

Air Quality

Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative, the Project proponent would develop a reduced Project site of 1,293 acres and install solar facilities with a total generation capacity of up to 216 MW of renewable electrical energy. As such, this alternative would emit air pollutants during Project construction, such as from off-road construction equipment, on-road vehicles, and fugitive PM from material movement, albeit to a lesser degree than would result from the proposed Project. In addition, operations may result in emissions from on-road vehicular traffic and landscape equipment associated with ongoing maintenance activities. As with the proposed Project, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would comply with federal, state, and local regulations and programs, including but not limited to, requirements set forth in SJVAPCD permits and applicable Rules, CARB's heavy-duty engine and on-road vehicle standards, and KCGP policies. This alternative would also implement Mitigation Measures MM 4.3-1 and MM 4.3-2 to ensure consistency with KCGP measures regarding construction-related emissions. Therefore, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would not conflict with applicable air quality plans or result in a cumulatively considerable net increase in criteria pollutants (that is, $PM_{2.5}$, PM_{10}, and ozone).

Similar to the proposed Project, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be required to comply with Regulation VIII, which is intended to reduce ambient concentrations of PM_{10} by requiring actions to prevent, reduce, or mitigate anthropogenic fugitive dust emissions. By reducing fugitive dust emissions, Regulation VIII reduces potential exposure to Valley Fever. Mitigation Measures MM 4.3-8 through MM 4.3-10 would be implemented to further reduce impacts associated with Valley Fever. Therefore, with the implementation of mitigation, impacts associated with the exposure of sensitive receptors to substantial TACs due to the Project-generated construction emissions would be less than significant.

Lastly, under this alternative, construction activities have the potential to emit odors within the Project site. However, construction and decommissioning equipment would not remain in one location for an extended period of time, odors would disperse rapidly, and construction equipment

would be used in compliance with CCR, Title 13, Sections 2449(d)(3) and 2485, which would minimize idling time.

Overall, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in less than significant, Project-specific impacts with mitigation regarding air quality. Furthermore, given the reduced development footprint, this alternative would result in less impacts compared to the proposed Project. However, construction-related air emissions associated with the 1,294 acre site still has the potential to make a cumulatively considerable contribution to significant cumulative impacts involving air quality.

Biological Resources

As described in Section 4.4, *Biological Resources*, the proposed Project would result in direct and indirect impacts on biological resources through habitat modification, habitat degradation, mortality of individuals, interference with reproductive success, and introduction of invasive species. Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative, the Project site would be reduced by approximately 90 percent, decreasing the development footprint from 11,983 acres to 1,293 acres. As such, a substantial portion of the original Project site would be omitted; thereby reducing the area where biological resources may be impacted. For example, this alternative would avoid impacts to biological resource located on and near the Buttonwillow Ecological Reserve via the removal of Site 5 and substantial size reduction of Site 6. Therefore, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would have less impacts regarding biological resources compared to the proposed Project.

However, despite the reduced development footprint, the Non-Williamson Act and Farmland Security Zone Parcels Alternative still has the potential to adversely affect biological resources, including special-status plants and wildlife, aquatic resources and sensitive natural communities, and migratory wildlife, or conflict with applicable policies and ordinances. To address potential impacts, the Project proponent would be required to implement Mitigation Measures MM 4.4-1 through MM 4.4-25, as applicable.

Overall, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in less than significant impacts with mitigation regarding biological resources and would result in less impacts compared to the proposed Project. However, this alternative would still involve direct and indirect impacts that would make a cumulatively considerable contribution to significant cumulative impacts involving special-status species, sensitive natural communities, and wildlife movement.

Cultural Resources

As described in Section 4.5, *Cultural Resources*, there are various archaeological resources located entirely or partially within the Project site, including pre-Contact sites and historic-era resources. The Non-Williamson Act and Farmland Security Zone Parcels Alternative would eliminate approximately 10,688 acres from the original Project site. This reduction would avoid direct impacts within all Sites, including all impacts that would result from development within Sites 3 through 5.

However, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would partially develop Sites 1, 2, 6, and 8, which would result in ground disturbance on approximately 1,294 acres of agriculture and undisturbed land. Therefore, this alternative has the potential to result in significant impacts regarding cultural resources warranting mitigation. Similar to the proposed Project, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be subject to Mitigation Measures MM 4.5-1 through MM 4.5-5 (Section 4.5, *Cultural Resources*), which would protect known cultural resource sites, require sensitivity training for construction workers, and require cultural monitoring during ground-disturbance activities. Additionally, Mitigation Measure MM 4.5-6 would be implemented, which identifies procedures for recording and treating human remains in the event of a discovery during construction.

Overall, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in less than significant impacts with mitigation regarding cultural resources. Furthermore, given the reduced development footprint, this alternative would result in less impacts compared to the proposed Project.

Energy

Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative, the Project area would be reduced by approximately 90 percent, decreasing the site from 11,987 acres to 1,293 acres. This alternative would reduce the original total solar generation and storage capacity by approximately 90 percent. Specifically, solar generation would be reduced from 2,000 MW (2 GW) to 216 MW (0.216 GW) and energy storage capacity from 16,000 MWh (16 GWh) to 1,727 MWh (1.727 GWh).

Given the reduced development footprint, the energy demand required for construction and operational maintenance would be reduced compared to the proposed Project. However, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in greater impacts regarding long-term energy offsets due to the reduced generation and storage capacity.

Furthermore, as previously described, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be consistent with federal, state, and local regulations and policies, including, but not limited to, requirements set forth in required SJVAPCD permits and applicable Rules, CARB's heavy-duty engine and on-road vehicle standards, and KCGP policies. As such, this alternative would not result in wasteful, inefficient, or unnecessary consumption of energy resources or conflict with applicable energy plans.

Geology and Soils

As described in Section 4.7, *Geology and Soils*, of this Draft EIR, the Project site is potentially susceptible to geologic hazards, including seismic ground-shaking, liquefaction, and expansive soils. As with the proposed Project, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be subject to the Kern County Building Code, which would reduce impacts to a less than significant level. Impacts would be further reduced with the implementation of Mitigation Measure MM 4.7-1, which requires the Project proponent to prepare a final engineering design-

specific geotechnical study, which would identify recommended measures to minimize geologic hazards.

With regard to soil erosion and loss of topsoil, ground disturbance associated with proposed Project construction would potentially create wind and water erosion of exposed soils. The Non-Williamson Act and Farmland Security Zone Parcels Alternative would implement Mitigation Measure MM 4.10-1, which requires the preparation and implementation of a SWPPP per the requirements of the NPDES Construction General Permit Program. The SWPPP would specify various types of BMPs, including erosion control measures, to prevent soil from moving off-site. The alternative would further adhere to all temporary erosion control measures required by the Kern County Grading Code (Chapter 17.28.140). This includes implementation of various measures designed to prevent erosion and control drainage on-site, thereby further preventing potential sedimentation. Compliance with these requirements would ensure that this alternative would not result in substantial soil erosion. Impacts would be less than significant after mitigation. Furthermore, compliance with Mitigation Measure MM 4.7-1 and performance standards within the Kern County Grading Code would ensure excessive grading does not occur.

Lastly, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would include the development of septic systems for the O&M buildings. The septic systems would be constructed to comply with applicable requirements that the Kern County Environmental Health Services Division enforces. The proposed septic systems are anticipated to be located away from surface drainages and protected from potential surface runoff, in accordance with Kern County laws, ordinances, regulations, and standards. The Project operator would implement the permit requirements regarding design and siting of septic system and leach fields in accordance with Mitigation Measure MM 4.7-2.

Overall, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in less than significant impacts with mitigation regarding geology and soils. Furthermore, given the reduced development footprint, this alternative would result in less impacts compared to the proposed Project.

Greenhouse Gas Emissions

Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative, the Project area would be reduced by approximately 90 percent, decreasing the site from 11,987 acres to 1,294 acres. This alternative would reduce the original total solar generation and storage capacity by approximately 90 percent. Specifically, solar generation would be reduced from 2,000 MW to 216 MW and energy storage capacity from 16,000 MWh to 1,727 MWh. Therefore, while the Non-Williamson Act and Farmland Security Zone Parcels Alternative would not conflict with applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions, this alternative would result in greater impacts regarding lower GHG emission offsets as compared to the proposed Project.

Hazards and Hazardous Materials

Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative, the Project proponent would develop a reduced Project site of 1,294 acres and install solar facilities with a total generation capacity of up to 216 MW of renewable electrical energy. As such, while to not the same extent as the proposed Project, this alternative would require the routine use, transport, and disposal of hazardous materials that may create a significant hazard to the public or the environment, such as in the event of a spill. For example, the PV solar panels would include semiconductor or electrically conducting materials that are considered to be hazardous. Therefore, as with the proposed Project, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be required to comply with Mitigation Measure MM 4.9-1, which requires the preparation of a HMBP, as applicable, pursuant to Article 1 and Article 2 of California HSC 6.95 and in accordance with Kern County Ordinance Code 8.04.030. Furthermore, Mitigation Measure MM 4.9-2 would still be required to minimize impacts related to the use of pesticides and herbicides.

With regard to emergency response and evacuation plans, the proposed Project would not result in significant impacts, primarily given that I-5 provides adequate access in the event of an emergency and the addition of two to three FTE personnel assumed to be required for this alternative would not create a significant increase in congestion or significantly worsen the service level at intersections on area roads. Therefore, given that the Non-Williamson Act and Farmland Security Zone Parcels Alternative involves a smaller development footprint and fewer FTE personnel, this alternative would also result in less than significant impacts.

Although the Non-Williamson Act and Farmland Security Zone Parcels Alternative site is not located within a high FHSZ, similar to the proposed Project, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be subject to Mitigation Measure MM 4.14-1, which requires the preparation and submittal of a Fire Safety Plan to the Kern County Fire Department for review and approval. The purpose of the Fire Safety Plan would be to eliminate causes of fire, prevent loss of life and property by fire, comply with County and County Fire Protection District standards for solar facilities, and comply with the OSHA standard of fire prevention (29 CFR 1910.39).

Similar to the proposed Project, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would not result in features or conditions that could potentially provide habitat for vectors, such as moving earth that would consequently create retention basins and ponded water. Furthermore, this alternative would incorporate recycling and non-recycling receptacles to ensure proper waste management and not produce excessive waste, standing water, or other features that would attract nuisance pests or vectors.

As described in Section 4.9, *Hazards and Hazardous Materials*, of this Draft EIR, the reduced Project site is not located within 0.25-miles of a school; is not listed in environmental regulatory databases for hazardous materials sites pursuant to Government Code Section 65962.5; and is not situated within an area governed by the Kern County ALUCP.

Overall, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in less than significant impacts with mitigation regarding hazards and hazardous materials. Furthermore, given the reduced development footprint, this alternative would result in less impacts as compared to the proposed Project.

Hydrology and Water Quality

Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative, the Project proponent would develop a reduced Project site of 1,294 acres and install solar facilities with a total generation capacity of up to 216 MW of renewable electrical energy. Site preparation, construction, and operational activities associated with this alternative could result in significant impacts to surface and groundwater quality. These impacts may arise from the discharge of pollutants—including pesticides, herbicides, automotive fluids, and petroleum products—or from the release of contaminants due to inundation of the Project site. In addition, ground disturbance and altered drainage patterns associated with this alternative may contribute to erosion and sedimentation, further impairing water quality.

To address potential water quality and soil erosion impacts, the Project proponent would be required to implement several mitigation measures. Specifically, per Mitigation Measure MM 4.10-1, the Project proponent would prepare and implement a SWPPP in accordance with NPDES Construction General Permit requirements. The SWPPP would incorporate BMPs to control soil erosion and prevent the discharge of construction-related pollutants that could adversely affect water quality. Additionally, Mitigation Measure MM 4.10-2 would require the Project proponent to complete a hydrologic study and final drainage plan to minimize increases in runoff from the Project site. The Non-Williamson Act and Farmland Security Zone Parcels Alternative would also involve implementation of Mitigation Measure MM 4.9-1, which requires preparation of a HMBP to ensure the safe handling, storage, and cleanup of hazardous materials in the event of an accidental release. With implementation of these measures, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would not violate water quality standards or waste discharge requirements, nor would it substantially degrade surface or groundwater quality. Furthermore, the risk of pollutant release due to flooding events would be effectively minimized.

Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative, the Tjaarda Dairy, located on Site 6, would continue to operate subject to applicable water quality regulations (for example, regulations requiring the implementation of waste discharge requirements).

As discussed in Section 4.10, *Hydrology and Water Quality*, construction and operation of the proposed Project are not expected to substantially reduce groundwater supplies within the Kern County Subbasin or conflict with applicable water quality control or groundwater management plans. The Non-Williamson Act and Farmland Security Zone Parcels Alternative, which would eliminate approximately 10,689 acres from the overall Project footprint, is similarly not anticipated to result in a substantial decrease in groundwater availability. Furthermore, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be subject to Mitigation Measure MM 4.10-2, as described above, to address potential impacts associated with increased impervious surfaces that may interfere with groundwater recharge opportunities.

As previously discussed, implementation of the Non-Williamson Act and Farmland Security Zone Parcels Alternative would involve site grading and the introduction of new impervious surfaces, which could increase surface water runoff rates. This increase has the potential to contribute to on-site or off-site flooding and may exceed the capacity of existing or planned stormwater drainage infrastructure. To address potential impacts, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be designed in accordance with the Kern County Public Works Department stormwater requirement and subject to Mitigation Measures MM 4.10-1 and MM 4.10-2. As such, this alternative would incorporate engineering recommendations that would properly control stormwater runoff on-site and incorporate design features that would be appropriately sized for storm events to minimize flooding and ensure adequate capacity.

Overall, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in less than significant impacts with mitigation regarding hydrology and water quality, but would have greater impacts than the proposed Project regarding groundwater resources.

Land Use and Planning

Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative, the Project proponent would develop a reduced Project site of 1,294 acres and install solar facilities with a total generation capacity of up to 216 MW of renewable electrical energy. While there are several existing single-family dwellings on the reduced Project site, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would not divide an established community.

As described in Section 4.11, *Land Use and Planning*, the proposed Project would be consistent with applicable local policies and plans, including KCGP, KCZO, and WALUC policies, with the implementation of mitigation measures identified within **Table 4.11-3:** *Project Consistency with Local Planning Documents.* Due to its reduced development footprint, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be expected to maintain consistency with applicable local land use plans and policies. Furthermore, this alternative would preserve approximately 10,689 acres of agricultural land, thereby advancing County policies that promote long-term agricultural preservation. Therefore, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in less than significant impacts with mitigation and would result in less impacts compared to the proposed Project.

Mineral Resources

As described in Section 4.12, *Mineral Resources*, there are several oil and gas wells (plugged, cancelled, and one idle) located within the proposed Project site and mineral rights holders that currently have active rights to mineral resources on several of the Tax Assessor's Parcels located within the Project site. As with the proposed Project, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would include a 10-foot, no-build setback around the existing oil and gas wells for inspection and maintenance purposes. Furthermore, portions of the Project site along with access to said areas would be left undeveloped as drilling areas available to mineral rights holders from within the Project site. Furthermore, Mitigation Measure MM 4.12-1 requires the Project proponent to provide documentation from any minerals right holders who agree to allow

for development activities within areas that might affect their ability to exercise their mineral rights (for example, impede future drill sites). Therefore, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in less than significant, Project-specific impacts with mitigation regarding mineral resources. However, although the Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in less impacts as compared to the proposed Project, this alternative would make a cumulatively considerable contribution to significant cumulative losses in access to oil and gas resources.

Noise

As described in Section 4.13, *Noise*, the proposed Project would result in temporary noise impacts generated by construction. The most substantial impacts were projected to occur at Sites 2, 5, 6, and 8, where construction activities located in proximity to sensitive receptors could result in noise levels reaching up to 80 dBA L_{eq}. Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative, the Project site would be reduced by approximately 90 percent, decreasing the development footprint from 11,983 acres to 1,293 acres. As such, a substantial portion of the original Project site would be omitted and a corresponding reduction in construction noise from the use of construction equipment, vehicles, and other noise-generating sources would result. The Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in substantially less construction noise impacts as compared to the proposed Project.

However, despite the reduced development footprint and proportionally less construction activities, the Non-Williamson Act and Farmland Security Zone Parcels Alternative still has the potential to adversely affect sensitive receptors. For example, as with the proposed Project, construction activities are anticipated to create noticeable noise increases and potentially exceed FTA guidance of 70 dBA 8-hour L_{eq}. Therefore, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be subject to Mitigation Measures MM 4.13-1 through MM 4.13-3 to address temporary construction-related noise impacts.

In addition, given the potential for operational noise from transformers and inverters to adversely affect sensitive receptors, this alternative would be subject to Mitigation Measure MM 4.13-4 to ensure that existing ambient noise level at the nearest off-site residential structure would not be exceeded by more than 5 dBA.

Lastly, similar to the proposed Project, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would not generate excessive ground-borne vibration or ground-borne noise levels. Therefore, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in less than significant, Project-specific impacts with mitigation regarding noise and vibration, and impacts would be reduced from the proposed Project.

Public Services

Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative, the Project proponent would develop a reduced Project site of 1,294 acres and install solar facilities with a total generation capacity of up to 216 MW of renewable electrical energy. Construction and operational activities associated with this alternative could result in incremental increases in demand for fire

protection and law enforcement services. These increases may stem from the potential introduction of new fire hazards and the need for enhanced police presence to ensure public safety during both construction and ongoing operations. To address potential impacts, the Project proponent would be required to implement Mitigation Measure MM 4.14-1 that requires the preparation of a Fire Safety Plan consistent with 2022 CFC and Kern County Fire Code. Additionally, Mitigation Measure MM 4.14-2 would require the Project proponent to pay a Kern County CIC to financially support the provision of adequate public services and facilities.

Similar to the proposed Project, the presence of additional employees is unlikely to incrementally increase the demand for local public services and facilities, including recreational, healthcare, and educational resources. However, impacts related to the construction or expansion of public services may still occur. As such, the Project proponent would implement Mitigation Measure MM 4.14-2, as described above, to provide funding to County public services. Mitigation Measures MM 4.14-3 and MM 4.14-4 would continue to be implemented, as necessary.

Overall, the Non-Williamson Act and Farmland Security Zone Parcels Alternative, would result in less than significant impacts with mitigation regarding public services. Furthermore, given the reduced development footprint and fewer required employees, this alternative would result in less impacts compared to the proposed Project.

Transportation

As discussed in Section 4.15, *Transportation*, construction activities associated with the proposed Project are generally anticipated to maintain traffic operations at or above the minimum acceptable LOS threshold of LOS D, as established in the KCGP Circulation Element. However, the Magnolia Avenue/7th Standard Road intersection is forecast to operate at LOS E during the PM peak hour during the construction phase. Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative, Sites 5 and 6 would be eliminated or substantially reduced in size, resulting in fewer construction-related vehicle trips through this intersection. As a result, the potential for LOS degradation at this location would be reduced under the alternative. To further reduce potential impacts at other intersections, the Project proponent would implement Mitigation Measure MM 4.15-1, which would incorporate specific measures to ensure peak hour construction worker vehicle limits are maintained during the AM and PM peak hours in order to maintain LOS D or better at the impacted intersections as indicated by Kern County Public Works. Additionally, the project proponent would prepare and implement a Construction Traffic Control Plan, as required by Mitigation Measure MM 4.15-2. Similar to the proposed Project, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be consistent with other applicable circulation programs, plans, ordinances, and policies.

The proposed Project would not result in VMT-related impacts associated with construction, operation, or maintenance activities. In comparison, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would develop only 10 percent of the original Project site and would require fewer construction and operational employees. Therefore, the Non-Williamson Act and Farmland Security Zone Parcels Alternative also would not result in significant VMT-related impacts.

The Non-Williamson Act and Farmland Security Zone Parcels Alternative does not involve the construction or physical alteration of new or existing intersections involving a public roadway. However, as with the proposed Project, this alternative would involve the construction and use of new driveways from public roads to provide access to the sites that constitute the reduced Project site. Given that the Non-Williamson Act and Farmland Security Zone Parcels Alternative would reduce the Project area by approximately 90 percent, this alternative would result in less impacts compared to the proposed Project; however potential to create new roadway-related hazards would remain. To address the potential for increased transportation hazards, the Project proponent would be required to implement Mitigation Measures MM 4.15-2, which would reduce impacts associated with hazards from the use of oversized vehicles during construction and/or decommissioning activities.

With regard to emergency access, the proposed Project would not result in significant impacts. Similar to the proposed Project, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would have 20-foot-wide-minimum roadways around the perimeter of the solar arrays to provide adequate fire apparatus access and other emergency vehicles. The roadways would also be designed in accordance with Kern County Public Works Department Development Standards and Kern County's Fire Code.

Overall, the Non-Williamson Act and Farmland Security Zone Parcels Alternative, would result in less than significant impacts with mitigation regarding transportation. Furthermore, given the reduced development footprint and fewer required employees, this alternative would result in less impacts compared to the proposed Project.

Tribal Cultural Resources

The Non-Williamson Act and Farmland Security Zone Parcels Alternative would partially develop Sites 1, 2, 6, and 8, which would result in ground disturbance on approximately 1,294 acres of agriculture and undisturbed land. Therefore, this alternative has the potential to result in significant impacts regarding tribal cultural resources which warrants mitigation. Similar to the proposed Project, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be subject to Mitigation Measures MM 4.5-1 through MM 4.5-6 (Section 4.5, *Cultural Resources*), which protects known cultural resource sites, requires sensitivity training for construction workers, and requires tribal cultural monitoring during ground-disturbance activities. Therefore, the Reduced Acreage Alternative would have less than significant impacts with mitigation regarding tribal cultural resources. Furthermore, given the reduced development footprint, this alternative would result in less potential for impacts as compared to the proposed Project.

Utilities and Service Systems

Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative, the Project proponent would develop a reduced Project site of 1,294 acres, representing a reduction of roughly 90 percent from the originally proposed footprint. As a result of the smaller development area and reduced system capacity, construction-related activities and long-term operational demands on

utilities and service systems would be proportionally lower than those anticipated under the proposed Project.

As detailed in Section 4.17, *Utilities and Service Systems*, the proposed Project would not necessitate the construction or relocation of new or expanded infrastructure related to water supply, wastewater treatment, stormwater management, electric power, natural gas, or telecommunications. Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative, development would occur on a portion of the original Project site and, similarly, no new or relocated utility facilities or infrastructure would be required to support this alternative. With respect to stormwater drainage systems, and given the amount of area that would be subject to soil disturbance, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be subject to Mitigation Measure MM 4.10-1, which requires the preparation of a SWPPP. The SWPPP must identify and implement BMPs, including measures to control the quality of stormwater runoff, thereby avoiding the need for construction or relocation of new or expanded stormwater drainage infrastructure under this alternative.

Water requirements for the proposed Project during construction and operation were determined in the WSA prepared for the proposed (Appendix I of this EIR). The proposed Project would require a maximum of 3,500 AF of water for construction over an up to 5-year period (1,000 AFY at peak construction) and up to 7 AFY for 35 years for O&M. The total project water demand is an estimated 3,745 AF, or approximately 97 AFY. The WSA determined the proposed Project would have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years and impacts would be less than significant. Therefore, given the smaller development footprint under the Non-Williamson Act and Farmland Security Zone Parcels Alternative, this alternative would require less water and would be adequately served by existing water supplies. However, the 10,689 acres excluded from the original Project site would remain in agricultural production requiring groundwater supplies to serve agricultural operations. Although the excluded agricultural operations would be consistent with applicable GSPs, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in greater impacts regarding water supplies compared to the proposed Project.

As with the proposed Project, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would involve contracting with a commercial operator to provide portable restrooms and manage wastewater disposal. Wastewater would be transported to a treatment facility that is either operated by the contractor or under an existing contractual agreement, and which has sufficient capacity to accept and treat the wastewater generated by this alternative. Furthermore, this alternative would still include a single, standard on-site septic tank and leach field system for each O&M building to dispose sanitary wastewater.

As described in Section 4.17, *Utilities and Service Systems*, the proposed Project is not anticipated to generate solid waste volumes that would exceed the permitted capacity of the landfills serving the Project site, including the Shafter-Wasco Landfill and the Taft Landfill. However, to address impacts related to C&D waste, the Project proponent would be required to implement Mitigation Measure MM 4.17-2, which requires compliance with waste diversion and recycling requirements. By complying with federal, state, and local regulations and implementing Mitigation Measure

MM 4.17-2, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would not generate solid waste in excess of state or local standards or the capacity of local infrastructure. Additionally, the alternative would not impair the attainment of solid waste reduction goals. Impacts would be reduced to less than significant with the implementation of mitigation and would be generally less than the proposed Project, except for impacts involving groundwater consumption.

Wildfire

Under the Non-Williamson Act and Farmland Security Zone Parcels Alternative, the Project proponent would develop a reduced Project site of 1,294 acres and install solar facilities with a total generation capacity of up to 216 MW of renewable electrical energy. As with the proposed Project, construction and operational activities associated with this alternative would not result in significant impacts regarding emergency response plans, emergency access, or evacuation plans, as described above. Specifically, this alternative would maintain the existing roadway network and provide 20-foot-wide-minimum roadways around the perimeter of the solar arrays. Additionally, Project-related traffic would not cause a significant increase in congestion or significantly worsen the existing service levels at intersections on area roads. However, to address temporary impacts associated with construction-related trips, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be subject to a Construction Traffic Control Plan, in accordance with Mitigation Measure MM 4.15-2. Additionally, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would comply with applicable regulations, including the 2022 CFC, the Kern County Fire Code, and Fire Prevention Standard No. 503-507 for Solar Panels.

As described in Section 4.18, *Wildfire*, the Project site is not located in or near a High or Very High FHSZ or within a SRA. Additionally, the Project site consists of relatively flat terrain that would not exacerbate the spread of wildfire. However, construction activities associated with this alternative would temporarily introduce ignition sources, such as spark or heat-generating tools, within non-native grasslands that serve as vegetative fuels. Therefore, as with the proposed Project, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be subject to Mitigation Measure MM 4.1-4 that requires the preparation of a Landscape Revegetation and Restoration Plan. Additionally, the alternative would be subject to the Kern County Fire Code that includes by reference the requirements of the 2022 CFC and 2021 IFC, and which would require consultation with the Kern County Fire Department to ensure all fire safety requirements are met.

With regard to wildfire hazards during operations, the alternative would involve the installation of various solar-related infrastructure, such as BESSs, radio towers, and gen-tie lines, that have the potential to introduce ignition sources or exacerbate wildfire risk. However, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be designed, constructed, and operated in accordance with applicable federal, state, and local regulations that would reduce potential impacts. For example, the BESSs would be designed to conform with Kern County and national BESS fire standard NFPA 855, and would include the installation of fire extinguishers and remotely controlled containers. Furthermore, the Project proponent would be required to implement various mitigation measures to reduce wildfire risk, including: Mitigation Measure MM 4.1-4, which would ensure vegetation is properly cleared and restored; and Mitigation Measure MM 4.14-1, which

would require the preparation of a Fire Stafey Plan consistent with the Kern County Fire Code and by reference the 2022 CFC and 2021 IFC. Therefore, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would not create Project-specific wildfire impacts.

Lastly, the Project site does not exhibit site characteristics that pose significant post-wildfire hazards, such as landslides or downslope flooding. Specifically, the Project site is relatively flat, is currently agricultural or undisturbed land, and does not consist of urban development and population that could be exposed to potential post-wildfire conditions. Furthermore, as previously stated, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would be subject to a SWPPP pursuant to Mitigation Measure MM 4.10-1, thereby further reducing the potential for on- or off-site flooding, erosion, and sedimentation.

Overall, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in less than significant impacts with mitigation regarding wildfire. Furthermore, given the reduced development footprint, this alternative would result in less impacts compared to the proposed Project. However, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would make a cumulatively considerable contribution to significant cumulative impacts associated with development that can exacerbate wildfire hazards.

Comparative Impacts of Alternative 5

Compared to the proposed Project, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would result in less impacts related to all environmental topics except for those related to groundwater consumption, given that the majority of the Project site would remain in agricultural production, and energy and GHG emissions, given the reduced renewable electrical power generation and storage capacity involved with this alternative.

Further, the Non-Williamson Act and Farmland Security Zone Parcels Alternative would involve development of 1,294 acres of agricultural and undisturbed land and would still have significant and unavoidable impacts related to aesthetics (project and cumulative), agriculture (project and cumulative), air quality (cumulative only-construction), biological resources (cumulative only), mineral resources (cumulative only), and wildfire (cumulative only).

Alternative 5's Relationship to the Applicant Submitted Project Objectives

The Non-Williamson Act and Farmland Security Zone Parcels Alternative would achieve all the Project objectives listed above in Section 6.2, yet to a substantially lesser degree as compared to the proposed Project due to the reduction in total solar energy production and storage capabilities.

6.8 Comparative Impacts of Proposed Project to All Alternatives

A summary of the comparative impacts of the Project to the alternatives analyzed in this Draft EIR is provided in **Table 6-3:** *Summary Comparison of Alternative Impacts*. Comparative impacts are identified as "Less," "Similar," or "Greater" than impacts resulting from the proposed Project. Comparative levels of significance are denoted by NI (No Impact), LTS (less than significant), and SU (significant and unavoidable).

Table 6-3: Summary Comparison of Alternative Impacts

Environmental Resource	Project Summary of Impacts	Alternative 1 No Project	Alternative 2 General Plan/Specific Plan and Zoning Build-Out Alternative	Alternative 3 Reduced Acreage Alternative	Alternative 4 No Ground-Mounted Utility-Solar Development Alternative	Alternative 5 Non-Williamson Act and Farmland Security Zone Parcels Alternative
Aesthetics and Visual Resource	Significant and unavoidable (project-specific and cumulative)	Less (NI)	Less (LTS)	Less (SU)	Less (LTS)	Less (SU)
Agricultural and Forest Resources	Significant and unavoidable (project-specific and cumulative)	Less (NI)	Less (LTS)	Less (SU)	Less (NI)	Less (SU)
Air Quality	Less than significant with mitigation (Project) Significant and unavoidable (cumulative construction)	Less (NI)	Greater (SU)	Less (LTS – project; SU – cumulative)	Less (LTS)	Less (LTS – project; SU – cumulative)
Biological Resources	Less that significant with mitigation (Project) Significant and unavoidable (cumulative only)	Less (NI)	Greater (SU - cumulative)	Less (LTS – project; SU – cumulative)	Less (LTS)	Less (LTS – project; SU – cumulative)
Cultural Resources	Less than significant with mitigation	Similar (LTS)	Greater (SU)	Less (LTS)	Less (LTS)	Less (LTS)
Energy	Less than significant	Greater (LTS)	Greater (LTS)	Greater (LTS)	Greater (LTS)	Greater (LTS)
Geology and Soils	Less than significant with mitigation	Less (NI)	Similar (LTS)	Less (LTS)	Less (LTS)	Less (LTS)
Greenhouse Gas Emissions	Less than significant	Greater (SU - cumulative)	Greater (SU)	Greater (LTS)	Greater (LTS)	Greater (LTS)
Hazards and Hazardous Materials	Less than significant with mitigation	Less (NI)	Greater (LTS))	Less (LTS)	Less (LTS)	Less (LTS)
Hydrology and Water Quality	Less than significant with mitigation	Greater (NI)	Greater (LTS)	Greater(groundwater), Less (others) (LTS)	Less (LTS)	Greater(groundwater), Less (others) (LTS)
Land Use and Planning	Less than significant with mitigation	Less (NI)	Less (NI)	Less (LTS)	Less (LTS)	Less (LTS)

Table 6-3: Summary Comparison of Alternative Impacts

Environmental Resource	Project Summary of Impacts	Alternative 1 No Project	Alternative 2 General Plan/Specific Plan and Zoning Build-Out Alternative	Alternative 3 Reduced Acreage Alternative	Alternative 4 No Ground-Mounted Utility-Solar Development Alternative	Alternative 5 Non-Williamson Act and Farmland Security Zone Parcels Alternative
Mineral Resources	Less than significant with mitigation (project-specific only) Significant and unavoidable (cumulative only)	Less (NI)	Less (LTS)	Less (SU)	Less (LTS)	Less (SU)
Noise	Less than significant with mitigation	Less (NI)	Greater (ground borne vibration) (SU)	Less (LTS)	Greater (LTS)	Less (LTS)
Public Services	Less than significant with mitigation	Less (NI)	Similar (LTS)	Less (LTS)	Less (LTS)	Less (LTS)
Transportation	Less than significant with mitigation	Less (NI)	Greater (SU)	Less (LTS)	Less (LTS)	Less (LTS)
Tribal Cultural Resources	Less than significant with mitigation	Less (NI)	Greater (SU)	Less (LTS)	Less (LTS)	Less (LTS)
Utilities and Service Systems	Less than significant with mitigation	Greater (LTS)	Greater (LTS)	Greater (groundwater), Less (others) (LTS)	Greater (groundwater), Less (others) (LTS)	Greater (groundwater), Less (others) (LTS)
Wildfire	Less than significant with mitigation (project-specific only) Significant and unavoidable (cumulative only)	Less (NI)	Similar (LTS)	Less (SU)	Less (LTS)	Less (SU)
Meet Applicant Provided Project Objectives?	All	None	None	Partially	Partially	All – but to a substantially lesser degree
Reduce Significant and Unavoidable Impacts?	N/A	All	Some	All	All	All

Key: NI = No impact; LTS = Less than significant; SU = Significant and unavoidable

6.9 Environmentally Superior Alternative

As presented in the comparative analysis above, and as shown in **:** *Summary Comparison of Alternative Impacts*, there are a number of factors to consider in selecting the environmentally superior alternative. An EIR must identify the environmentally superior alternative to the proposed Project. Alternative 1, the No Project Alternative, would be environmentally superior to the proposed Project on the basis of its minimization or avoidance of physical environmental impacts. However, CEQA Guidelines Section 15126.6(e)(2) states the following:

> *The "no project" analysis shall discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.*

Because the No Project Alternative cannot be the Environmentally Superior Alternative under CEQA, the Environmentally Superior Alternative is considered to be Alternative 4, the No Ground-Mounted Utility-Solar Development Alternative. Compared to the proposed Project, the No Ground-Mounted Utility-Solar Development Alternative would result in less impacts related to aesthetics, agriculture, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, public services, transportation, tribal cultural resources, utilities and service systems, and wildfires. Specifically, this alternative would avoid significant and unavoidable impacts related to aesthetics and visual resources (project and cumulative), agricultural resources (project and cumulative), air quality (cumulative only- construction), biological resources (cumulative only), mineral resources (cumulative only), and wildfire (cumulative only) that would occur under the proposed Project.

However, the No Ground-Mounted Utility-Solar Development Alternative has the potential to result in greater construction noise-related impacts as compared to the proposed Project, depending on the proposed locations of the solar PV systems in relation to noise-sensitive receptors. Further, given that this alternative does not include sun-tracking solar PV systems or a battery energy storage component, the No Ground-Mounted Utility-Solar Development Alternative would result in greater impacts regarding energy and GHG emissions.

The No Ground-Mounted Utility-Solar Development Alternative would partially fulfill the objectives outlined in Section 6.2, *Project Objectives*. This alternative would support renewable energy generation and align with the Project proponent's goals for solar development, reliable electricity, and GHG reduction. However, the absence of sun-tracking technologies would result in substantially lower energy output compared to the proposed Project and would not include a centralized energy storage system, thereby limiting its ability to deliver consistent and reliable

power. Additionally, because all energy produced would be consumed on-site, the alternative would not contribute to grid-distributed renewable energy, reducing its effectiveness in meeting regional energy supply goals.

Additionally, as previously described, the No Ground-Mounted Utility-Solar Development Alternative would be unable to be implemented within the same timeframe as the proposed Project, as the Project proponent lacks immediate control and access to the sites required to develop the solar facilities.

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Chapter 7

Response to Comments

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Chapter 7
Response to Comments

This chapter is reserved for, and will be included in, the Final EIR.

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Chapter 8

Organizations and Persons Consulted

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Chapter 8
Organizations and Persons Consulted

8.1 Federal

U.S. Bureau of Land Management

U.S. Dept of Agriculture/Natural Resources Conservation Service

U.S. Fish and Wildlife Service

U.S. Army Corps of Engineers

U.S. Environmental Protection Agency

Federal Aviation Administration

8.2 State of California

California Air Resources Board

California Department of Conservation, Geologic Energy Management Division

California Department of Fish and Wildlife

California Department of Public Health

California Department of Toxic Substances Control

California Department of Transportation

California Department of Water Resources

California Energy Commission

California Environmental Protection Agency

California Highway Patrol

California Native American Heritage Commission

California Natural Resources Agency

California Office of Historic Preservation

California Public Utilities Commission

California Regional Water Quality Control Board, Central Valley Region

California Resources Petroleum Corporation

California State Senate

California State Lands Commission

California State University Bakersfield Library

California Workforce Development Board

Governor's Office of Business and Economic Development

Governor's Office of Land Use and Climate Innovation

Native American Heritage Council

Public Policy Institute of California

8.3 Regional and Local

Bakersfield City Planning Department

Bakersfield City Public Works Department

Buena Vista Water Storage District

Buttonwillow County Water District

Buttonwillow Improvement District

Buttonwillow Recreation and Parks District

Buttonwillow Union School District

California City Planning Department

California State University Bakersfield

Center for Biological Diversity

Center on Race, Poverty and the Environment

City of Arvin

City of Bakersfield

City of Maricopa

City of McFarland

City of Ridgecrest

City of Shafter

City of Taft

City of Tehachapi

City of Wasco

Delano City Planning Department

Inyo County Planning Department

Kern Citizens for Energy

Kern Community College District

Kern County Environmental Health Services Department

Kern County Farm Bureau

Kern County Fire Department

Kern County Library

Kern County Parks & Recreation

Kern County Public Works Department

Kern County Sheriff's Department

Kern County Superintendent of Schools

Kern County Water Agency

Kern Valley Indian Council

Kings County Planning Agency

Los Angeles Audubon

Los Angeles Co Regional Planning Department

Maple School District

Mojave Town Council

Native American Heritage Council of Kern County

North West Kern Resource Conservation District

Pacific Gas and Electric Company

Richland-Lerdo Union School District

Rio Bravo-Greeley Union School District

Rosedale-Rio Bravo Water District

San Bernardino Co Planning Department

San Joaquin Valley Air Pollution Control District

San Joaquin Valley Center on Race, Poverty and the Environment

San Luis Obispo Co Planning Department

Santa Barbara Co Resource Management Department

Semitropic Improvement District

Semitropic Water Storage District

Shafter High School District

Shafter Recreation & Parks District

Sierra Club, Kern Kaweah Chapter

Southern California Gas Company

South San Joaquin Valley Arch Info Center

Southern California Gas Company

Taft Union High School District

Tulare County Planning and Development Department

Twenty-Nine Palms Band of Mission Indians

Union Pacific Railroad Co.

Wasco Recreation & Parks District

Wasco Union Elementary School District

Ventura County RMA Planning Division

8.4 Other

Aera Energy LLC

California Native Plant Society

Defenders of Wildlife

Kern Valley Indian Community

Kern Valley Indian Council

Kitanemuk and Yowlumne Tejon Indians

Kleinfelder

Northern Chumash Tribal Council

Santa Rosa Rancheria Tachi Yokut Tribe

Tejon Indian Tribe

Torres Martinez Desert, Cahuilla Indians

Tubatulabals of Kern Valley

Tule River Indian Tribe

Twenty-Nine Palms Band of Mission Indians

Yuhaaviatam of San Manuel Nation

Chapter 9

List of Preparers

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Chapter 9
List of Preparers

9.1 Lead Agency

Kern County Planning and Natural Resources Department

Craig M. Murphy, Interim Planning Director

Nicole Menchaca, Division Chief

Jack Foster, Planner II

Mark Tolentino, Planner III

9.2 Technical Assistance

WSP USA, Inc.

Michael Smith, Project Director

Dan Klemann, Project Manager, Environmental Planning

Brittany Cabeje, Deputy Project Manager/Senior Consultant, Environmental Planning

Rebecca Frohning, Senior Consultant, Sustainable Infrastructure

Elisabeth Schwing, Senior Consultant, Sustainable Infrastructure

Megan Moreen, Senior Consultant, Sustainable Infrastructure

Ryan Johnson, Senior Biologist

Camilla McDonald, Senior Environmental Planner, Archaeologist

Ryan Arp, Senior Environmental Planner, Archaeologist

Matt Sauter, Senior Environmental Planner, Paleontologist

Michael Arizabal, Senior Transportation Planner

Kevin Keller, Senior Noise Specialist

Krystle Rayos, Environmental Planner

Kelly Nishimura, Environmental Planner

Callan Roemer, GIS Analyst

Randy Burton, Senior Design Visualization Specialist

Amy Cook, Editorial Services Manager

Megan Trujillo, Formatter

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Chapter 10

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Chapter 10
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5 Consequences of Project Implementation

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Chapter 11

Acronyms and Abbreviations

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Chapter 11
Acronyms and Abbreviations

§	Section
°C	degrees Celsius
°F	degrees Fahrenheit
AAQA	Ambient air quality analysis
AB	Assembly Bill
AC	Alternating current
ACBM	asbestos-containing building materials
ACHP	Advisory Council on Historic Preservation
AD	Anno Domini
ADT	Average daily traffic
AF	acre-feet
AFY	acre-feet per year
ALUCP	Airport Land Use Compatibility Plan
AMSL	above mean sea level
ANSI	American National Standards Institute
APCD	Air Pollution Control District
APCO	Air Pollution Control Officer
API	Area of Potential Impact
APLIC	Avian Power Line Interaction Committee

APN	Assessor's Parcel Number
ATC	Authority to Construct
ATCM	Airborne Toxic Control Measures
ATP	Active Transportation Plan
AWMP	Agricultural Water Management Plan
BAU	business as usual
BCWD	Buttonwillow County Water District
BESS	Battery Energy Storage Systems
bgs	below ground surface
BLM	Bureau of Land Management
BMP	Best management practice
BPS	Best performance standards
BVWSD	Buena Vista Water Storage District
C&D	construction and demolition
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAD	computer aided design
CAFE	Corporate Average Fuel Economy
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Occupational Safety and Health Administration
CalARP	California Accidental Release Prevention Program

CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CalGEM	California Geologic Energy Management Division
CalGREEN	State of California Green Building Code Requirements
CalOES	California Office of Emergency Services
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAN	Clean Air Now
CAO	County Administrative Office
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CASQA	California Stormwater Quality Association
CBC	California Building Code
CCAA	California Clean Air Act
CCAP	Climate Change Action Plan
CCR	California Code Regulations
CCS	Crypto-crystalline silicate
CDC	Center for Disease Control
CDFW	California Department of Fish and Wildlife
CdTe	cadmium telluride
CEC	California Energy Commission

CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERS	California Environmental Reporting System
CFC	California Fire Code
CFC	chlorofluorocarbon
CFR	Code of Federal Regulations
CGC	California Government Code
CGS	California Geological Survey
CH4	methane
CHL	California Historical Landmarks
CHP	California Highway Patrol
CHR	California Historical Resources
CHRIS	California Historical Resources Information System
CIC	Cumulative Impact Charge
CIP	Capital Improvement Program
CISN	California Integrated Seismic Network
CIWMB	California Integrated Waste Management Board
CMA	Congestion Management Agency
CMP	Congestion management program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level

CNLM	Center for Natural Lands Management
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	Criteria pollutants include ozone
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COG	Kern Council of Governments
CPUC	California Public Utilities Commission
CREC	Controlled Recognized Environmental Condition
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CSLC	California State Lands Commission
CSP	concentrated solar power
CUP	Conditional Use Permit
CUPA	Certified Unified Program Agency
CVC	California Vehicle Code
CWA	Clean Water Act
CWC	California Water Code
CWPP	Community Wildfire Protection Plan
DAC	disadvantaged community

DAC	direct air capture
dB	decibel
dBA	A-Weighted Sound Level
DEIR	Draft Environmental Impact Report
DMA	Development Mitigation Agreement
DMR	Division of Mine Reclamation
DNL	day-night level
DOC	Department of Conservation
DOGGR	California Division of Oil, Gas, and Geothermal Resources
DOSH	California Division of Occupational Safety and Health
DPM	disel particulate matter
DPR	Department of Parks and Recreation
DTSC	Department of Toxic Substances Control
DWQ	Division of Water Quality
DWR	Department of Water Resources
EIR	Environmental Impact Report
EISA	Energy Independence and Security Act
EMF	electromagnetic field
EMS	Emergency Medical Services
EO	Executive Order
EPA	Environmental Protection Agency

EPC	Engineering, procurement, and construction contractor
EPCA	Energy Policy and Conservation Act
EPS	Emissions Performance Standard
ERC	Emission Reduction Credits
ESA	Environmental Site Assessment
ESS	Energy storage systems
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
FHWA	Federal Highway Administration
Fire Code	Kern County Code of Building Regulations
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FONSI	Finding of No Significant Impact
FP	fueling positions
FPPA	Farmland Protection Policy Act
FR	Federal Register
FRA	Federal Railroad Administration
FSZ	Farmland Security Zone
FTA	Federal Transit Administration
FTE	Full-time equivalent

FTIP	Federal Transportation Improvement Program
GAMAQI	Guidance for Assessing and Mitigating Air Quality Impacts
GHG	greenhouse gas
GIS	Geographic Information System
GLC	Ground-level concentration
GO	General Order
GPA	General Plan Amendment
GPS	Global Positioning System
GSP	Groundwater Sustainability Plan
GW	gigawatt
GWh	gigawatt hour
GWP	Global warming potential
HAP	hazardous air pollutant
HCM	Highway Capacity Manual
HEIMP	PG&E comprehensive management plan
HFC	hydrofluorocarbons
HMBP	Hazardous Materials Business Plan
HMIS	Hazardous Materials Inventory Statement
HMMP	Hazardous Materials Management Plan
HMRRP	Hazardous Materials Release Response Plan and Inventory
HMTA	Hazardous Materials Transportation Act

HRA	Health Risk Assessment
HREC	Historical Recognized Environmental Condition
HRRS	Health-Risk Reduction Strategy
HSC	Health and Safety Code
HSG	Hydrological Soil Groups
HUC	Hydrological Unit Code
HVAC	heating, air-conditioning, and ventilation systems
HWMP	Hazardous Waste Management Plan
Hz	Hertz
I-5	Interstate 5
ICRMP	Integrated Cultural Resources Management Plan
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IFC	International Fire Code
IGY	International Geophysical Year
IPCC	Intergovernmental Panel on Climate Change
ips	inches per second
IRWM	Integrated Regional Water Management
IRWMP	Integrated regional water management plan
IS	Initial Study
ISR	Indirect Source Rule

ITE	Institute of Transportation Engineers
ITP	incidental take permit
KCAR	Kern County Assessor-Recorder Office
KCFD	Kern County Fire Department
KCGP	Kern County General Plan
KCOG	Kern County Council of Governments
KCPNRD	Kern County Planning and Natural Resources Department
KCSO	Kern County Sheriff's Office
KCWA	Kern County Water Agency
KCZO	Kern County Zoning Ordinance
Kern COG	Kern County Council of Governments
KGA	Kern Groundwater Authority
KOP	Key Observation Point
KSCO	Kern County Sherriff's Office
kV	kilovolt
kWh	kilowatt hour
LACM	National History Museum of Los Angeles
LCFS	Low Carbon Fuel Standard
LCI	Land Use and Climate Innovation
Ldn	Day/Night Noise Level
Leq	Equivalent Noise Level

Lmax	Maximum Noise Level
LOS	Level of Service
LRA	Local Responsibility Area
LST	Lattice steel towers
Lw	Sound Power Level
MBTA	Migratory Bird Treaty Act
MHMP	Multi-hazard mitigation plan
mm	millimeter
MM	Mitigation Measure
MMT	million metric ton
MP	megapixel
mpg	miles per gallon
mph	miles per hour
MPO	Metropolitan planning organizations
MRZ	Mineral Resource Zone
MT	Metric ton
MW	megawatt
MWh	megawatt-hour
MY CO_2e	metric tons of CO_2 equivalent
N_2O_3	nitrous oxide
NAAQS	National Ambient Air Quality Standards

NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NB	northbound
NCCP	Natural Communities Conservation Plan
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEHRP	National Earthquake Hazards Reduction Program
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NIMS	National Incident Management System
NIOSH	National Institute for Occupational Safety and Health
NLR	Noise Level Reduction
NMFS	National Marine Fisheries Service
No.	Number
NO_2	nitrogen dioxide
NOAA	National Oceanic Atmospheric Administration
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation

NOP/IS	Notice of Preparation/Initial Study
NO_x	nitrogen oxides
NPDES	National Pollution Discharge Elimination System
NPMS	National Pipeline Mapping System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSB	National Scenic Byways
NSR	New Source Review
O&M	Operations and maintenance
O_3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OHP	Office of Historic Preservation
OHV	off-highway vehicle
OPR	Office of Planning and Research
OSFM	Office of the State Fire Marshal
OSHA	Occupational Safety and Health Administration
P.L.	Public Law
PA	participating agency
PAH	polycyclic aromatic hydrocarbons
Pb	lead

PCE	passenger car equivalence
PCS	Power Converter Stations
PEER	Permit-Exempt Equipment Registration
PERC	tetrachloroethylene
PFC	perfluorocarbons
PG&E	Pacific Gas and Electric Company
PHMSA	Pipeline and Hazardous Materials Safety Administration
PI	Plasticity index
PM	particulate matter
$PM_{0.1}$	ultrafine particles
$PM_{2.5}$	Fine Particulate Matter
PM_{10}	respirable particulate matter
Porter-Cologne	Porter-Cologne Water Quality Control Act
PPA	Power Purchase Agreement
ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
PSD	Prevention of Significant Deterioration
psi	pounds per square inch
PTO	Permit to Operate

PV	photovoltaic
PVC	polyvinyl chloride
RBOB	reformulated blendstock for oxygenate blending
RCC	Regional Climate Center
RCNM	Roadway Construction Noise Model
RCRA	Resource Conservation and Recovery Act of 1976
REC	Recognized Environmental Concern
RFS	renewable fuel standards
RMP	Risk Management Program
RMS	root mean square
ROG	reactive organic gases
ROW	Right-of-Way
RPS	Renewable Portfolio Standard
RRBWSD	Rosedale-Rio Bravo Water Storage District
RSPA	Research and Special Provisions Administration
RTP	Regional Transportation Plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWMG	Regional Water Management Group
RWQCB	Regional Water Quality Control Board
SAFE-1	Safer Affordable Fuel-Efficient Vehicles Rule Part One: One National Program
SARA	Superfund Amendments and Reauthorization Act

SB	Senate Bill
SB	Southbound
SC	Scenic Corridor
SCE	Southern California Edison
SCIC	Supplemental Cumulative Impact Charge
SCS	Sustainable Communities Strategy
SDWA	Safe Drinking Water Act of 1974
SEIA	Solar Energy Industry Association
SEIA	United States Solar Energy Industry Association
SEL or SENEL	Sound Exposure Level or Single Event Noise Exposure Level
SF_6	Sulfur Hexafluoride
SFHA	Special flood hazard areas
SGMA	Sustainable Groundwater Management Act
SHPO	State Historic Preservation Officer
SHRC	State Historical Resources Commission
SIL	Significant impact level
SIO	International Organization of Standardization
SIP	State Implementation Plans
SJPC	San Joaquin Power Company
SJV	San Joaquin Valley
SJVAB	San Joaquin Valley Air Basin

SJVAPCD	San Joaquin Valley Air Pollution Control District
SLCP	Short-lived Climate Pollutants
SLF	Sacred Lands File
SMARA	Surface Mining and Reclamation Act of 1975
SMGB	State Mining and Geology Board
SO_2	sulfur dioxide
SO_x	sulfur oxides
sp.	species
SPA	Specific Plan Amendment
SPCC	Spill, Prevention, Control, and Countermeasure
SR	State Route
SRA	State Responsibility Area
SRR	Santa Rosa Rancheria
SSC	species of special concern
SSJVIC	Southern San Joaquin Valley Information Center
State	State of California
STC	Sound Transmission Class
STIP	State Transportation Improvement Program
SVP	Society of Vertebrate Paleontology
SWDA	Safe Water Drinking Act
SWP	State Water Project

SWRCB	State Water Resources Control Board
SWSD	Semitropic Water Storage District
TAC	toxic air contaminants
TAZ	Traffic Analysis Zone
TDM	Transportation Demand Management
TDS	total dissolved solid
TIS	Transportation Impact Study
TMDL	total maximum daily loads
TMP	Traffic Management Plan
TOD	transit-oriented development
tpy	tons per year
TSP	Tubular steel poles
UBC	Uniform Building Code
UFC	Uniform Fire Code
UIC	Underground Injection Control
UL	Underwriters Laboratory
Unified Program	unified hazardous waste and hazardous materials management
USACE	United States Army Corps of Engineers
USC	United States Code
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation

USDW	Underground source of drinking water
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USPS	United States Postal Service
UST	Underground Storage Tank
UV	ultraviolet
UWMP	Urban Water Management Plan
V/C	volume-to-capacity ratio
VERA	Voluntary Emission Reduction Agreement
VMT	vehicle miles traveled
VOC	volatile organic compounds
VRM	Visual Resource Management
WAC	Williamson Act Contract
WALUC	Williamson Act Land Use Contracts
WALUCC	Williamson Act Land Use Contract Cancellation
WDR	waste discharge requirement
WEAP	Worker Environmental Awareness Program
WKWD	West Kern Water District
WOUS	Waters of the United States
WRCC	Western Regional Climate Center

WSA	Water Supply Assessment
WWTP	Wastewater Treatment Plant
ZEV	zero-emission vehicle